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Military Students Text Book

VOLUME I

FOR THE USE OF

R.O.T.C. and S.A.T.C. Units

AT

Educational Institutions

BY

COLONEL JAMES A. MOSS, *U. S. Army*

AND

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(Professor of Military Science and Tactics)
The Johns Hopkins University

APPROVED BY THE WAR DEPARTMENT
JULY 23, 1918

Entire Course Junior Division
Basic Course—1st Year—Senior Division
First Period, Students Army Training Corps

The Collegiate Press
GEORGE BANTA PUBLISHING COMPANY
MENASHA, WISCONSIN

U102
M7
v. 1

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Educational Institutions which maintain R. O. T. C. and S. A. T. C. units may adopt this manual as a text book with perfect safety, as it has the full approval of the War Department.

The request of the authors for permission to publish this manual stated: "This manual is arranged in a convenient form so as to make it easier for educational institutions to comply with G. O. 49 W. D. 1916, in imparting theoretical military instruction," and the War Department was fully aware of the purpose for which this book is intended when permission to publish was granted.

Had this book failed to meet the requirements of G. O. 49 W. D. 1916, permission to publish it as a text book for educational institutions operating under G. O. 49 would probably not have been given.

As this book goes to press the new S. A. T. C. units are being formed, but inquiry in regard to the new course established the fact that this text book would meet the requirements of R. O. T. C. or S. A. T. C. units.

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PREFACE

In presenting this book to educational institutions which are members of the Reserve Officers' Training Corps or the Students' Army Training Corps the authors have endeavored to produce in a single text book the entire theoretical course for the first year of the basic course as specified in General Orders No. 49 W. D. 1916. In addition, to meet the needs of institutions having Junior Divisions of the Reserve Officers' Training Corps, an appendix is inserted which will enable such institutions to likewise comply with General Orders No. 49 W. D. 1916. Thus a student completing the course of the Junior Division also completes the first year basic course Senior Division.

As the majority of educational institutions devote one hour per week during the college year to recitations and military science for their first year students, the book has been divided into lessons each of such length as will be suitable to the average student.

Paragraphing with bold type is designed to assist the instructor in giving his annunciation to be recited upon to the student.

The entire volume has been written with a view to making it easier for students of the upper classes to teach the text to the incoming classes where the number of students enrolled necessitates this being done.

Matter bearing upon the present war has purposely been omitted. No matter has been inserted in this volume which has been marked "confidential" by the War Department.

THE REQUIREMENTS

BASIC COURSE, 1ST YEAR, SENIOR DIVISION

What General Orders No. 49, War Dept., 1916, requires for this year:

Practical:

- Physical Drill
- Infantry Drill—to include School of the Battalion
- Sighting, Position, and Aiming Drills
- Gallery Practice
- Nomenclature and Care of Rifle and Equipment
- Fire Direction and Control
- Ceremonies
- Saber Manual, Tent Pitching, Bayonet Combat
- Intrenchments
- First Aid Instruction
- Range Practice

Theoretical:

- Theory of Target Practice, Individual and Collective
- Military Organization
- Map Reading
- Service of Security and Information
- Personal Hygiene
- Combat (illustrated by Tactical Exercises)
- Drill Regulations to include School of Company
- Camp Sanitation for Small Commands

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JUNIOR DIVISION

- Infantry Drill Regulations
- Manual of Guard Duty
- Physical Drills
- Military Hygiene (personal, camp, first aid)
- Military Policy (lectures)
- Small Arms Firing Regulations
- Administration and Organization (lectures)
- Map Reading
- Patroling, Advance and Rear Guards, Outposts, Small Map Maneuvers, Messages, Orderly
- Marches, Camps and Expedients
- Flag Signaling

This text will serve as a text for the Junior Division (School of Battalion appears in Manual No. 2), therefore a student of the Junior Division who has *completed* this text should be eligible to enter the 2nd Year Basic Course at an institution maintaining a Senior Division Unit.

LESSON 1

INFANTRY DRILL REGULATIONS

UNITED STATES ARMY

SIMPLIFIED AND EXPLAINED

(Note.—Company drills naturally become monotonous. The monotony, however, can be greatly reduced by repeating the drills under varying circumstances. In the *Manual of Arms*, for instance, the company may be brought to open ranks and the officers and sergeants directed to superintend the drill in the front and rear ranks. As the men make mistakes they are fallen out and drilled nearby by an officer or noncommissioned officer. Or, the company may be divided into squads, each squad leader drilling his squad, falling out the men as they make mistakes, the men thus fallen out reporting to a designated officer or noncommissioned officer for drill. The men who have drilled the longest in the different squads are then formed into one squad and drilled and fallen out in like manner. The variety thus introduced stimulates a spirit of interest and rivalry that robs the drill of much of its monotony.

It is thought the instruction of a company in drill is best attained by placing special stress on squad drill. The noncommissioned officers should be thoroughly instructed, practically and theoretically, by one of the company officers and then be required to instruct their squads. The squads are then united and drilled in the school of the company.—Author.)

DEFINITIONS

Alignment: A straight line upon which several elements are formed, or are to be formed; or the dressing of several elements upon a straight line.

FIG. 1

(Note.—The line AB on which a body of troops is formed or is to be formed, or the act of dressing a body of troops on the line, is called an alignment.—Author.)

Base: The element on which a movement is regulated.

Battle sight: The position of the rear sight when the leaf is laid down.

Corresponds to a range of 530 yards.—Author.

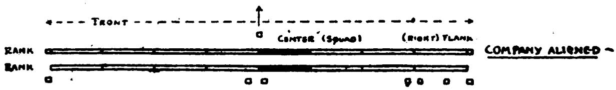

FRONT
CENTER (SQUAD)
(RIGHT) FLANK
RANK
RANK
COMPANY ALIGNED

FIG 2

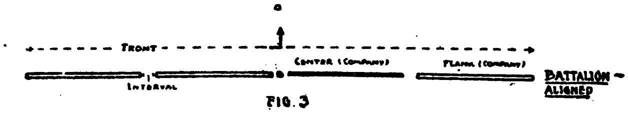

FRONT
CENTER (COMPANY)
FLANK (COMPANY)
INTERVAL
BATTALION ALIGNED

FIG. 3

Center: The middle point or element of a command. (See Figs. 2 and 3, this page; and Fig. 5, this page.)

Column: A formation in which the elements are placed one behind another. (See Figs. 4, 5 and 6, this page.)

Deploy: To extend the front. In general to change from column to line, or from close order to extended order.

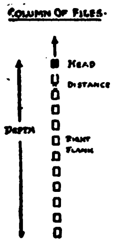

COLUMN OF FILES
HEAD
DISTANCE
DEPTH
RIGHT FLANK

FIG. 4

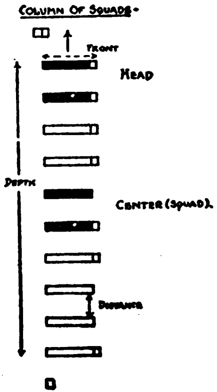

COLUMN OF SQUADS
FRONT
HEAD
DEPTH
CENTER (SQUAD)
DISTANCE

Fig. 5

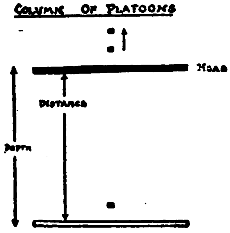

COLUMN OF PLATOONS
HEAD
DISTANCE
DEPTH

FIG. 6

Depth: The space from head to rear of any formation, including the leading and rear elements. The depth of a man is assumed to be 12 inches. (See Figs. 4, 5 and 6, this page.)

Distance: Space between elements in the direction of depth. Distance is measured from the back of the man in front to the breast of the man in rear. The distance between ranks is 40 inches in both line and column. (See Figs. 4, 5 and 6, this page.)

Element: **A file, squad, platoon, company, or larger body, forming part of a still larger body.**

File: Two men, the front-rank man and the corresponding man of the rear rank. The front-rank man is the **file leader.** A file which has no rear-rank man is a **blank file.** The term **file** applies also to a single man in a single rank formation.

File closers: Such officers and noncommissioned officers of a company as are posted in rear of the line. For convenience, all men posted in the line of the file closers.

Flank: The right or left of a command in line or in column; also the element on the right or left of the line. (See Figs. 2, 3 and 4, page 8.)

Formation: Arrangement of the elements of a command. The placing of all fractions in their order in line, in column, or for battle.

Front: The space, in width, occupied by an element, either in line or in column. The front of a man is assumed to be 22 inches. Front also denotes the direction of the enemy. (See Figs. 2, 3 and 5, page 8.)

Guide: An officer, noncommissioned officer, or private upon whom the command or elements thereof regulates its march.

Head: The leading element of a column. (See Figs. 4, 5, and 6, page 8.)

Interval: Space between elements of the same line. The interval between men in ranks is 4 inches and is measured from elbow to elbow. Between companies, squads, etc., it is measured from the left elbow of the left man or guide of the group on the right to the right elbow of the right man or guide of the group on the left. (See Fig. 3, page 8.)

Left: The left extremity or element of a body of troops.

Line: A formation in which the different elements are abreast of each other. (See Figs. 2 and 3, page 8.)

Order, close: The formation in which the units, in double rank, are arranged in line or in column with normal intervals and distances.

Order, extended: The formation in which the units are separated by intervals greater than in close order.

Pace: Thirty inches; the length of the full step in quick time.

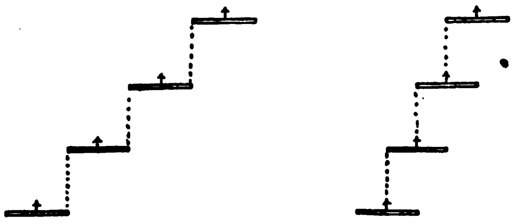
Point of rest: The point at which a formation begins. Specifically, the point toward which units are aligned in successive movements.

Rank: A line of men placed side by side.

Right: The right extremity or element of a body of troops.

(Note.—In view of the fact that the word "Echelon" is a term of such common usage, the following definition is given: By echelon we mean a formation in which the subdivisions are placed one behind another, extending beyond and unmasking one another either wholly or in part.—Author.)

BATTALION IN ECHELON.



COMPANIES UNMASKING WHOLLY

COMPANIES UNMASKING IN PART.

Fig. 7

PART I.—DRILL

INTRODUCTION

1. **Object of military training.** Success in battle is the ultimate object of all military training; success may be looked for only when the training is intelligent and thorough.

2. **Commanding officers accountable for proper training of organizations; field efficiency; teamwork.** Commanding officers are accountable for the proper training of their respective organizations within the limits prescribed by regulations and orders.

The excellence of an organization is judged by its field efficiency. The field efficiency of an organization depends primarily upon its effectiveness as a whole. Thoroughness and uniformity in the training of the units of an organization are indispensable to the efficiency of the whole; it is by such means alone that the requisite teamwork may be developed.

3. **Simple movements and elastic formations.** Simple movements and elastic formations are essential to correct training for battle.

4. **Drill Regulations a Guide; their interpretation.** The Drill Regulations are furnished as a guide. They provide the principles for training and for increasing the probability of success in battle.

In the interpretation of the regulations, the spirit must be sought. Quibbling over the minutiae of form is indicative of failure to grasp the spirit.

5. **Combat principles.** The principles of combat are considered in Part II of these regulations. They are treated in the various schools included in Part I only to the extent necessary to indicate the functions of the various commanders and the division of responsibility between them. The amplification necessary to a proper understanding of their application is to be sought in Part II.

6. **Drills at attention, ceremonies, extended order, field exercises and combat exercises.** The following important distinctions must be observed:

(a) Drills executed at **attention** and the ceremonies are **disciplinary exercises** designed to teach precise and soldierly movement, and to inculcate that prompt and subconscious obedience which is essential to proper military control. To this end, smartness and precision should be exacted in the execution of every detail. Such drills should be frequent, but short.

(b) The purpose of **extended order drill** is to teach the **mechanism** of deployment, of the firings, and, in general, of the employment of troops in combat. Such drills are in the nature of disciplinary exercises and should be frequent, thorough, and exact, in order to habituate men to the firm control of their leaders. Extended order drill is executed **at ease.** The company is the largest unit which executes extended order drill.

(c) **Field exercises** are for instruction in the duties incident to campaign. Assumed situations are employed. Each exercise should conclude with a discussion, on the ground, of the exercise and principles involved.

(d) The **combat exercise, a form of field exercise** of the company, battalion, and larger units, consists of the **application of tactical principles** to assumed situations, employing in the execution the appropriate formations and movements of close and extended order.

Combat exercises must simulate, as far as possible, the battle conditions assumed. In order to familiarize both officers and men with such conditions, companies and battalions will frequently be consolidated to provide war-strength organizations. Officers and noncommissioned officers not required to complete the full quota of the units participating are assigned as observers or umpires.

The firing line can rarely be controlled by the voice alone; thorough training to insure the proper use of prescribed signals is necessary.

The exercise should be followed by a brief drill at attention in order to restore smartness and control.

7. **Imaginary, outlined and represented enemy.** In field exercises the enemy is said to be **imaginary** when his position and force are merely assumed; **outlined** when his position and force are indicated by a few men; **represented** when a body of troops acts as such.

General Rules for Drills and Formations

8. **Arrangement of elements of preparatory command.** When the **preparatory** command consists of more than one part, its elements are arranged as follows:

(1) For movements to be executed successively by the subdivisions or elements of an organization: **(a)** Description of the movement; **(b)** how executed, or on what element executed.

(For example: 1. Column of Companies, first company, squads right, 2. March.—Author.)

(2) For movements to be executed simultaneously by the subdivisions of an organization: **(a)** The designation of the subdivisions; **(b)** The movement to be executed. (For example: 1. Squads right, 2. March—Author.)

9. **Movements executed toward either flank explained toward but one flank.** Movements that may be executed toward either flank are explained as toward but one flank, it being necessary to substitute the word ''left'' for ''right,'' and the reverse, to have the explanation of the corresponding movement toward the other flank. The commands are given for the execution of the movements toward either flank. The substitute word of the command is placed within parentheses.

10. **Any movement may be executed from halt or when marching unless otherwise prescribed.** Any movement may be executed either from the halt or when marching, unless otherwise prescribed. If at a halt, the command for movements involving marching need not be prefaced by **forward,** as 1. **Column right (left),** 2. **MARCH.**

11. **Any movement may be executed in double time unless specially excepted.** Any movement not specially excepted may be executed in double time.

If at a halt, or if marching in quick time, the command **double time** precedes the command of execution.

12. **Successive movements executed in double time.** In successive movements executed in double time the leading or base unit marches in **quick time** when not otherwise prescribed; the other units march in **double time** to their places in the formation ordered and then conform to the gait of the leading or base unit. If marching in double time, the command **double time** is omitted. The leading or base unit marches in **quick time**; the other units continue at double time to their places in the formation ordered and then conform to the gait of the leading or base unit.

13. **To hasten execution of movement begun in quick time.** To hasten the execution of a movement begun in quick time, the command: 1. **Double time**, 2. **MARCH**, is given. The leading or base unit continues to march in quick time, or remains at halt, if already halted; the other units complete the execution of the movement in double time and then conform to the gait of the leading or base unit.

14. **To stay execution of movement when marching, for correction of errors.** To stay the execution of a movement when marching, for the correction of errors, the command: 1. **In place**, 2. **HALT**, is given. All halt and stand fast without changing the position of the pieces. To resume the movement the command: 1. **Resume**, 2. **MARCH**, is given.

15. **To revoke preparatory command or begin anew movement improperly begun.** To revoke a preparatory command, or, being at a halt, to begin anew a movement improperly begun, the command, AS YOU WERE, is given, at which the movement ceases and the former position is resumed.

16. **Guide.** Unless otherwise announced, the guide of a company or subdivision of a company in line is **right**; of a battalion in line or line of subdivisions or of a deployed line, **center**; of a rank in column of squads, toward the side of the guide of the company.

To march with guide other than as prescribed above, or to change the guide: **Guide (right, left, or center).**

In successive formations into line, the guide is toward the point of rest; in platoons or larger subdivisions it is so announced.

The announcement of the guide, when given in connection with a movement, follows the command of execution for that movement. Exception: 1. **As skirmishers, guide right (left or center)**, 2. **MARCH.**

17. **Turn on fixed and moving pivots.** The turn on the **fixed pivot** by subdivisions is used in all formations from line into column and the reverse.

The turn on the **moving pivot** is used by subdivisions of a column in executing changes of direction.

18. **Partial changes of direction.** Partial changes of direction may be executed:

By interpolating in the preparatory command the word **half**, as **Column half right (left)**, or **Right (left) half turn.** A change of direction of 45° is executed.

By the command: **INCLINE TO THE RIGHT (LEFT).** The guide, or guiding element, moves in the indicated direction and the remainder of the command conforms. This movement effects slight changes of direction.

19. **Line of platoons, companies, etc.** The designations **line of platoons, line of companies, line of battalions, etc.**, refer to the forma-

tions in which the platoons, companies, battalions, etc., each in column of squads, are in line.

20. **Full distance in column of subdivisions; guide of leading subdivision charged with step and direction.** Full distance in column of subdivisions is such that in forming line to the right or left the subdivisions will have their proper intervals.

In column of subdivisions the guide of the leading subdivision is charged with the step and direction; the guides in rear preserve the trace, step, and distance.

21. **Double rank, habitual close order formation; uniformity of interval between files obtained by placing hand on hip.** In close order, all details, detachments, and other bodies of troops are habitually formed in double rank.

To insure uniformity of interval between files when falling in, and in alignments, each man places the palm of the left hand upon the hip, fingers pointing downward. In the first case, the hand is dropped by the side when the next man on the left has his interval; in the second case, at the command front.

22. **Posts of officers, noncommissioned officers, and special units; duties of file closers.** The posts of officers, noncommissioned officers, special units (such as band or machine-gun company), etc., in the various formations of the company, battalion, or regiment, are shown in plates.

In all changes from one formation to another involving a change of post on the part of any of these, posts are promptly taken by the most convenient route as soon as practicable after the command of execution for the movement; officers and noncommissioned officers who have prescribed duties in connection with the movement ordered, take their new posts when such duties are completed.

As instructors, officers and noncommissioned officers go wherever their presence is necessary. As file closers it is their duty to rectify mistakes and insure steadiness and promptness in the ranks.

23. **Special units have no fixed posts except at ceremonies.** Except at ceremonies, the special units have no fixed places. They take places as directed; in the absence of directions, they conform as nearly as practicable to the plates, and in subsequent movements maintain their relative positions with respect to the flank or end of the command on which they were originally posted.

24. **General, field and staff officers habitually mounted; formation of staff; drawing and returning saber.** General, field, and staff officers are habitually mounted. The staff of an officer forms in single rank, 3 paces in rear of him, the right of the rank extending 1 pace to the right of a point directly in rear of him. Members of the staff are arranged in order from right to left as follows: General staff officers, adjutants, aides, other staff officers, arranged in each classification in order of rank, the senior on the right. The flag of the general officer and the orderlies are 3 paces in rear of the staff, the flag on the right. When necessary to reduce the front of the staff and orderlies, each line executes twos

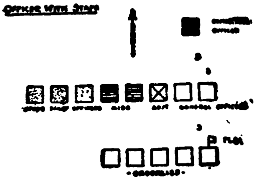


FIG. 8

right or **fours right,** as explained in the Cavalry Drill Regulations, and follows the commander.

When not otherwise prescribed, staff officers draw and return saber with their chief.

25. **Mounted officer turns to left in executing about; when commander faces about to give commands, staff and others stand fast.** In making the about, an officer, mounted, habitually turns to the left.

When the commander faces to give commands, the staff, flag, and orderlies do not change position.

26. **Saluting when making or receiving reports; and on meeting.** When making or receiving official reports, or on meeting out of doors, all officers will salute.

Military courtesy requires the junior to salute first, but when the salute is introductory to a report made at a military ceremony or formation, to the representative of a common superior (as, for example, to the adjutant, officers of the day, etc.), the officer making the report, whatever his rank, will salute first; the officer to whom the report is made will acknowledge by saluting that he has received and understood the report.

27. **Formation of mounted enlisted men for ceremonies.** For ceremonies, all mounted enlisted men of a regiment or smaller unit, except those belonging to the machine-gun organizations, are consolidated into a detachment; the senior present commands if no officer is in charge. The detachment is formed as a platoon or squad of cavalry in line or column of fours; noncommissioned staff officers are on the right or in the leading ranks.

28. **Post of dismounted noncommissioned staff officers for ceremonies.** For ceremonies, such of the noncommissioned staff officers as are dismounted are formed 5 paces in rear of the color, in order of rank from right to left. In column of squads they march as file closers.

29. **Post of noncommissioned staff officers and orderlies other than for ceremonies.** Other than for ceremonies, noncommissioned staff officers and orderlies accompany their immediate chiefs unless otherwise directed. If mounted, the noncommissioned staff officers are ordinarily posted on the right or at the head of the orderlies.

30. **Noncommissioned officer commanding platoon or company, carrying of piece and taking of post.** In all formations and movements a noncommissioned officer commanding a platoon or company carries his piece as the men do, if he is so armed, and takes the same post as an officer in like situation. When the command is formed in line for ceremonies, a noncommissioned officer commanding a company takes post on the right of the right guide after the company has been aligned.

ORDERS, COMMANDS, AND SIGNALS

31. **When commands, signals, and orders are used. Commands** only are employed in drill at attention. Otherwise either a **command, signal,** or **order** is employed, as best suits the occasion, or one may be used in conjunction with another.

32. **Instruction in use of signals; use of headdress, etc., in making signals. Signals** should be freely used in instruction, in order that officers and men may readily know them. In making arm signals, the saber, rifle, or headdress may be held in the hand.

33. **Fixing of attention; a signal includes command of preparation and of execution.** Officers and men fix their attention at the first word of command, the first note of the bugle or whistle, or the first motion of the signal. A signal includes both the preparatory command and the command of execution; the movement commences as soon as the signal is understood, unless otherwise prescribed.

34. **Repeating orders, commands and signals; officers, platoon leaders, guides and musicians equipped with whistles; whistles with different tones.** Except in movements executed at **attention,** commanders or leaders of subdivisions repeat orders, commands, or signals whenever such repetition is deemed necessary to insure prompt and correct execution.

Officers, battalion noncommissioned staff officers, platoon leaders, guides, and musicians are equipped with whistles.

The Major and his staff will use a whistle of distinctive tone; the captain and company musicians a second and distinctive whistle; the platoon leaders and guides a third distinctive whistle.

35. **Limitation of prescribed signals; special prearranged signals.** Prescribed signals are limited to such as are essential as a substitute for the voice under conditions which render the voice inadequate.

Before or during an engagement special signals may be agreed upon to facilitate the solution of such special difficulties as the particular situation is likely to develop, but it must be remembered that simplicity and certainty are indispensable qualities of a signal.

Orders

36. **Orders defined; when employed.** In these regulations an **order** embraces instructions or directions given orally or in writing in terms suited to the particular occasion and not prescribed herein.

Orders are employed only when the **commands** prescribed herein do not sufficiently indicate the will of the commander.

Commands

37. **Command defined.** In these regulations a **command** is the will of the commander expressed in the phraseology prescribed herein.

38. **Kinds of commands; how given.** There are two kinds of commands:

The **preparatory** command, such as **forward,** indicates the movement that is to be executed.

The command of **execution,** such as **MARCH, HALT,** or **ARMS,** causes the execution.

Preparatory commands are distinguished by **bold face**; those of execution by **CAPITALS.**

Where it is not mentioned in the text who gives the commands prescribed, they are to be given by the commander of the unit concerned.

The **preparatory** command should be given at such an interval of time before the command of **execution** as to admit of being properly understood; the command of **execution** should be given at the instant the movement is to commence.

The tone of command is animated, distinct, and of a loudness proportioned to the number of men for whom it is intended.

Each **preparatory** command is enunciated distinctly, with a rising inflection at the end, and in such manner that the command of **execution** may be more energetic.

The command of **execution** is firm in tone and brief.

39. **Battalion and higher commanders repeat commands of superiors; battalion largest unit executing movement at command of its commander.** Majors and commanders of units larger than a battalion repeat such commands of their superiors as are to be executed by their units, facing their units for that purpose. The battalion is the largest unit that executes a movement at the command of execution of its commander.

40. **Facing troops and avoiding indifference when giving commands.** When giving commands to troops it is usually best to face toward them.

Indifference in giving commands must be avoided as it leads to laxity in execution. Commands should be given with spirit at all times.

Bugle Signals

41. **Bugle signals that may be used on and off the field of battle.** The authorized bugle signals are published in Part V of these regulations.

The following bugle signals may be used off the battle field, when not likely to convey information to the enemy:

Attention: Troops are brought to attention.

Attention to orders: Troops to fix their attention.

Forward, march: Used also to execute quick time from double time.

Double time, march.

To the rear, march: In close order, execute **squads right about.**

Halt.

Assemble, march.

The following bugle signals may be used on the battle field:

Fix bayonets.

Charge.

Assemble, march.

These signals are used only when intended for the entire firing line; hence they can be authorized only by the commander of a unit (for example, a regiment or brigade) which occupies a distinct section of the battle field. Exception: **Fix bayonet.**

The following bugle signals are used in exceptional cases on the battle field. Their principal uses are in field exercises and practice firing.

Commence firing: Officers charged with fire direction and control open fire as soon as practicable. When given to a firing line, the signal is equivalent to **fire at will.**

Cease firing: All parts of the line execute **cease firing** at once.

These signals are not used by units smaller than a regiment, except when such unit is independent or detached from its regiment.

Whistle Signals

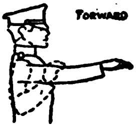
42. **Attention to orders.** A **short blast** of the whistle. This **signal** is used on the march or in combat when necessary to fix the attention of troops, or of their commanders or leaders preparatory to giving commands, orders, or signals.

When the firing line is firing, each squad leader suspends firing **and** fixes his attention at a **short blast** of his platoon leader's whistle. The platoon leader's subsequent commands or signals are repeated and enforced by squad leader. If a squad leader's attention is attracted by a whistle other than that of his platoon leader, or if there are no orders or commands to convey to his squad, he resumes firing at once.

Suspend firing. A **long blast** of the whistle. All other whistle signals are prohibited.

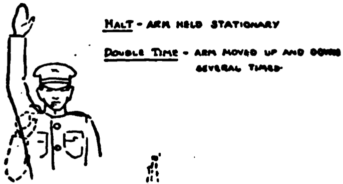
Arm Signals

43. The following arm signals are prescribed. In making signals either arm may be used. Officers who receive signals on the firing line "repeat back" at once to prevent misunderstanding.



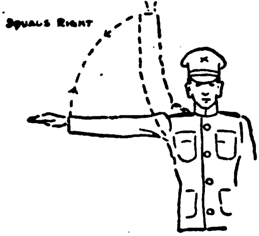
Forward, MARCH. Carry the hand to the shoulder; straighten and hold the arm horizontally, thrusting it in the direction of march.

This signal is also used to execute quick time from double time.

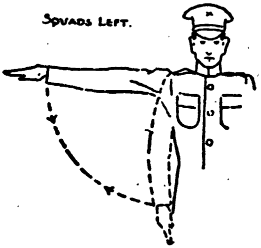

HALT - ARM HELD STATIONARY
DOUBLE TIME - ARM MOVED UP AND DOWN SEVERAL TIMES

Halt. Carry the hand to the shoulder; thrust the hand upward and hold the arm vertically.

Double time, MARCH. Carry the hand to the shoulder; rapidly thrust the hand upward the full extent of the arm several times.

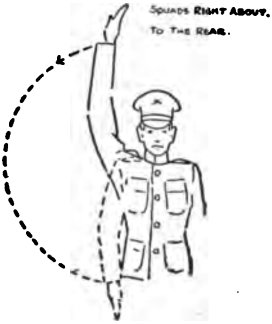


Squads right, MARCH. Raise the arm laterally until horizontal; carry it to a vertical position above the head and swing it several times between the vertical and horizontal positions.

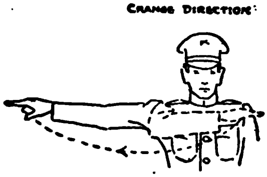

SQUADS LEFT.

Squads left, MARCH. Raise the arm laterally until horizontal; carry it downward to the side and swing it several times between the downward and horizontal positions.

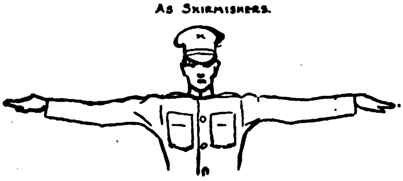
43 (contd.)


Squads Right About.
To The Rear.

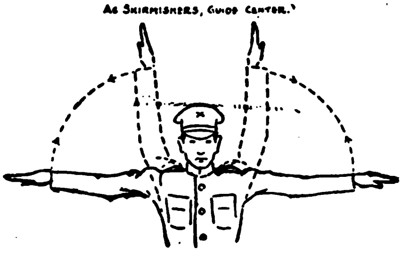
Squads right about, MARCH (if in close order) or, **To the rear, MARCH** (if in skirmish line). Extend the arm vertically above the head; carry it laterally downward to the side and swing it several times between the vertical and downward positions.


Change Direction:

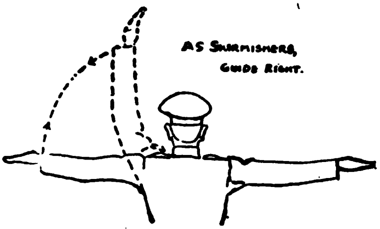
Change direction or Column right (left), MARCH. The hand on the side toward which the change of direction is to be made is carried across the body to the opposite shoulder, forearm horizontal; then swing in a horizontal plane, arm extended, pointing in the new direction.


As Skirmishers.

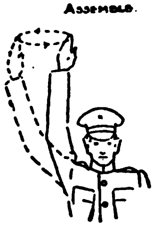
As skirmishers, MARCH. Raise both arms laterally until horizontal.


As Skirmishers, Guide Center.

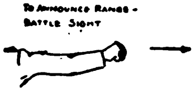
As skirmishers, guide center, MARCH. Raise both arms laterally until horizontal; swing both simultaneously upward until vertical and return to the horizontal; repeat several times.


AS SKIRMISHERS,
GUIDE RIGHT.

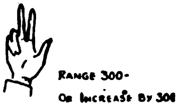
As skirmishers, guide right (left), MARCH. Raise both arms laterally until horizontal; hold the arm on the side of the guide steadily in the horizontal position; swing the other upward until vertical and return it to the horizontal; repeat several times.



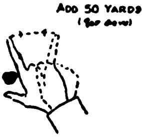
Assemble, March. Raise the arm vertically to its full extent and describe horizontal circles.


TO ANNOUNCE RANGE -
BATTLE SIGHT

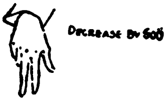
Range or Change elevation. To announce **range** extend the arm toward the leaders or men for whom the signal is intended, fist closed; by keeping the fist closed battle sight is indicated;


RANGE 300-
OR INCREASE BY 300

by opening and closing the fist, expose thumb and fingers to a number equal to the hundreds of yards;


ADD 50 YARDS.

to add 50 yards describe a short horizontal line with forefinger.


DECREASE BY 500

To change elevation, indicate the **amount of increase** or **decrease** by fingers as above; point upward to indicate **increase** and downward to indicate **decrease.**

What range are you using? or **What is the range?** Extend the arms toward the person addressed, one hand open, palm to the front, resting on the other hand, fist closed.

Are you ready? or **I am ready.** Raise the hand, fingers extended and joined, palm toward the person addressed.

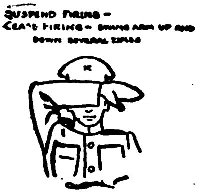
Commence firing. Move the arm extended in full length, hand palm down, several times through a horizontal arc in front of the body.

Fire faster. Execute rapidly the signal ''Commence firing.''

Fire slower. Execute slowly the signal ''Commence firing.''

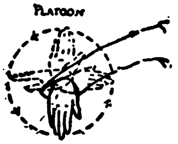
Swing the cone of fire to the right, or left. Extend the arm in full length to the front, palm to the right (left); swing the arm to right (left), and point in the direction of the new target.

Fix Bayonet. Simulate the movement of the right hand in ''Fix bayonet'' (par. 95).

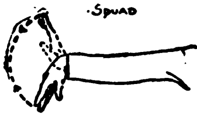

SUSPEND FIRING -
CEASE FIRING - SWING ARM UP AND DOWN SEVERAL TIMES

Suspend firing. Raise and hold the forearm steadily in a horizontal position in front of the forehead, palm of the hand to the front.

Cease firing. Raise the forearm as in **suspend firing** and swing it up and down several times in front of the face.



Platoon. Extend the arm horizontally toward the platoon leader; describe small circles with the hand. (See par. 44.)



Squad. Extend the arm horizontally toward the platoon leader; swing the hand up and down from the wrist. (See par. 44.)

Rush. Same as **double time.**

44. **Use of signals ''platoon'' and ''squad.''** The signals **platoon** and **squad** are intended primarily for communication between the captain and his platoon leaders. The signal **platoon** or **squad** indicates that the platoon commander is to cause the signal which follows to be executed by platoon or squad.

Note.—The following signals, while not prescribed, are very convenient:

Combined sights. Extend the arm toward the leaders for whom the signal is intended, hand open and turn hand rapidly from right to left a number of times. Then indicate ranges in the manner prescribed, giving the mean of the two ranges. (For example: If the combined sights are 1050 and 1150, indicate a range of 1100 yards. The leaders who give the oral commands, give the command, ''Range 1050 and 1150,'' whereupon every man in the front rank, before deployment, fixes his sight at

1150, and every man in the rear rank, before deployment, fixes his sight at 1050.)

Company. Bring the hand up near the shoulder and then thrust to the front, snapping fingers in usual way; repeat several times.

Contract fire. Extend both arms horizontally, fingers extended, arms parallel, palms facing each other; bring hands together **once**, and hold them so and look at the leader concerned.

Disperse fire. Bring hands together, fingers extended, pointing in direction of leader concerned, arms extended horizontally; swing arms outward **once**, and hold them so and look at the leader concerned.

Platoon column. Raise both arms vertically, full length, arms parallel, fingers joined and extended, palms to the front.

Prepare to rush. Cross the arms horizontally several times.

Squad Column. Raise both arms vertically from elbows, elbows at side of body, fingers joined and extended, palms to the front.—Author.

LESSON 2

SCHOOL OF THE SOLDIER

45. **Duties of instructor.** The instructor explains briefly each movement, first executing it himself if practicable. He requires the recruits to take the proper positions unassisted and does not touch them for the purpose of correcting them, except when they are unable to collect themselves. He avoids keeping them too long at the same movement, although each should be understood before passing to another. He exacts by degrees the desired precision and uniformity.

46. **Grouping of recruits according to proficiency.** In order that all may advance as rapidly as their abilities permit, the recruits are grouped according to proficiency as instruction progresses. Those who lack aptitude and quickness are separated from the others and placed under experienced drill masters.

INSTRUCTION WITHOUT ARMS

47. **Formation of squad for preliminary instruction.** For preliminary instruction a number of recruits, usually not exceeding three or four, are formed as a squad in single rank.

Position of the Soldier, or Attention

48. Heels on the same line and as near each other as the conformation of the man permits.

Feet turned out equally and forming an angle of about 45°.

Knees straight without stiffness.

Hips level and drawn back slightly; body erect and resting equally on hips; chest lifted and arched; shoulders square and falling equally.

Arms and hands hanging naturally, thumb along the seam of the trousers.

Head erect and squarely to the front, chin drawn in so that the axis of the head and neck is vertical; eyes straight to the front.

Weight of the body resting equally upon the heels and balls of the feet.

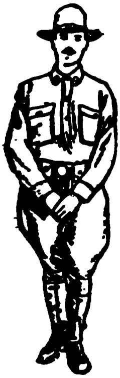
The Rests

49. Being at a halt, the commands are: **FALL OUT**; **REST**; **AT EASE**; and, 1. **Parade**, 2. **Rest.**

At the command **fall out**, the men may leave the ranks, but are required to remain in the immediate vicinity. They resume their former places, at attention, at the command **fall in.**

At the command **rest** each man keeps one foot in place, but is not required to preserve silence or immobility.

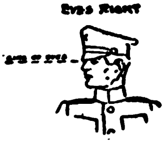
At the command **at ease** each man keeps one foot in place, and is required to preserve silence but not immobility.



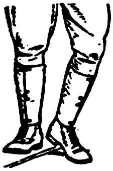
50. 1. **Parade,** 2. **REST.** Carry the right foot 6 inches straight to the rear, left knee slightly bent; clasp the hands, without constraint, in front of the center of the body, fingers joined, left hand uppermost, left thumb clasped by the thumb and forefinger of the right hand; preserve silence and steadiness of position.

51. To resume the attention: 1. **Squad,** 2. **ATTENTION.** The men take the position of the soldier.

Eyes Right or Left

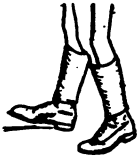


52. 1. **Eyes,** 2. **RIGHT (LEFT),** 3. **FRONT.** At the command **right,** turn the head to the right oblique, eyes fixed on the line of eyes of the men in, or supposed to be in, the same rank. At the command **front,** turn the head and eyes to the front.

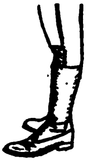


Facings

53. To the flank: 1. **Right (left),** 2. **FACE.** Raise slightly the left heel and right toe;



face to the right, turning on the right heel, assisted by a slight pressure on the ball of the left foot;

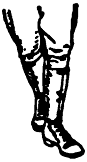


place the left foot by the side of the right.

Left face is executed on the left heel in the corresponding manner.

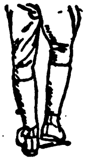
Right (left) half face is executed similarly, facing 45°.

"To face in marching" and advance, turn on the ball of either foot and step off with the other foot in the new line of direction; to face in marching without gaining ground in the new direction, turn on the ball of either foot and mark time.

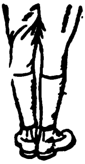


54. To the rear: 1. **About,** 2. **FACE.**

Carry the toe of the right foot about a half foot-length to the rear and slightly to the left of the left heel without changing the position of the left foot;



face to the rear, turning to the right on the left heel and right toe;

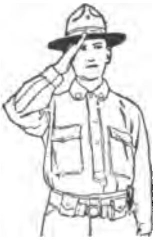


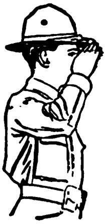
place the right heel by the side of the left.

Salute with the hand.

55. 1. **Hand,** 3. **SALUTE.**

Raise the right hand smartly till the tip of the forefinger touches the lower part of the headdress or forehead above the right eye, thumb and fingers extended and joined, palm to the left, forearm inclined at about 45°, hand and wrist straight; at the same time look toward the person saluted.





(TWO) Drop the arm smartly by the side.

STEPS AND MARCHINGS

56. **Steps and marchings begin with left foot.** All steps and marchings executed from a halt, except right step, begin with the left foot.

57. **Length and cadence of full steps; indicating cadence.** The length of the full step in quick time is 30 inches, measured from heel to heel, and the cadence is at the rate of 120 steps per minute.

The length of the full step in double time is 36 inches; the cadence is at the rate of 180 steps per minute.

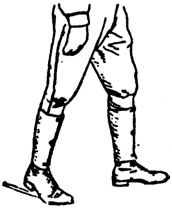
The instructor, when necessary, indicates the cadence of the step by calling **one, two, three, four,** or **left, right,** the instant the left and right foot, respectively, should be planted.

58. **Steps and marchings and movements involving marching habitually executed in quick time.** All steps and marchings and movements involving march are executed in **quick time** unless the squad be marching in **double time,** or **double time** be added to the command; in the latter case **double time** is added to the preparatory command. Example: 1. **Squad Right, double time,** 2. **MARCH** (School of the Squad).

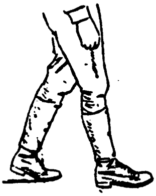
Quick Time

59. Being at a halt, to march forward in quick time: 1. **Forward,** 2. **MARCH.**

At the command **forward,** shift the weight of the body to the right leg, left knee straight.



At the command **march,** move the left foot smartly straight forward 30 inches from the right, sole near the ground, and plant it without shock;

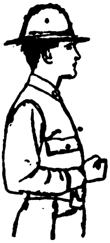


next, in like manner, advance the right foot, and plant it as above;

continue the march. The arms swing naturally.

60. Being at a halt, or in march in quick time, to march in double time: 1. **Double time,** 2. **MARCH.**

If at a halt, at the first command shift the weight of the body to the **right leg.**



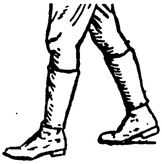
At the command **march**, raise the forearms, fingers closed, to a horizontal position along the waist line, take up an easy run with the step and cadence of double time (par. 57), allowing a natural swinging motion to the arms.

If marching in quick time, at the command **march**, given as either foot strikes the ground, take one step in quick time, and then step off in double time.

61. To resume the quick time: 1. **Quick time**, 2. **MARCH**.

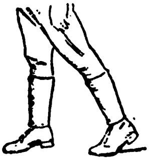
At the command **march**, given as either foot strikes the ground, advance and plant the other foot in double time; resume the quick time, dropping the hands by the sides.

To Mark Time

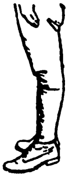


62. Being in march: 1. **Mark time**, 2. **MARCH**.

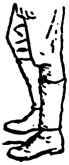
At the command **march**, given as either foot strikes the ground,



advance and plant the other foot;



bring up the foot in rear



and continue the cadence by alternately raising each foot about two inches and planting it on line with the other.

Being at a halt, at the command **march**, raise and plant the feet as described above.

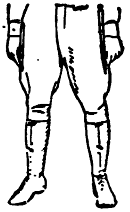
The Half Step

63. 1. **Half step,** 2. **MARCH.**

Take steps of 15 inches in quick time, 18 inches in double time.

64. **Forward, half step, halt,** and **mark time** may be executed one from the other in quick or double time.

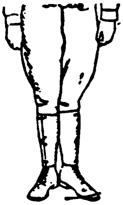
To resume the full step from half step or mark time: 1. **Forward,** 2. **MARCH.**



Side Step

65. Being at a halt or mark time: 1. **Right (left) step,** 2. **MARCH.**

Carry and plant the right foot 15 inches to the right;



bring the left foot beside it,

and continue the movement in the cadence of quick time.

The side step is used for short distances only and is not executed in double time.

If at order arms, the side step is executed **at trail** without command.

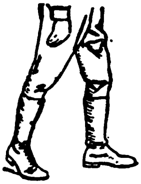
Back Step

66. Being at a halt or mark time: 1. **Backward,** 2. **MARCH.**

Take steps of 15 inches straight to the rear.

The back step is used for short distances only and is not executed in double time.

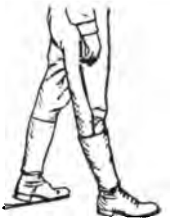
If at order arms, the back step is executed **at trail** without command.



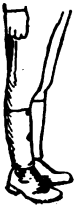
To Halt

67. To arrest the march in quick or double time: 1. **Squad,** 2. **HALT.**

At the command **halt,** given as either foot strikes the ground,

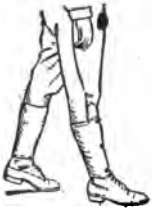


plant the other foot as in marching;



raise and place the first foot by the side of the other.

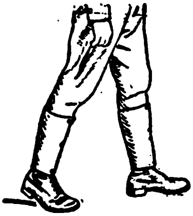
If in double time, drop the hands by the sides.



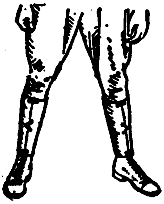
To March by the Flank

68. Being in march: 1. **By the right (left) flank**, 2. **MARCH.**

At the command **march**, given as the **right** foot strikes the ground,



advance and plant the **left** foot,



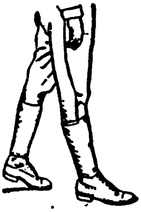
then face to the **right** in marching (par. 56),

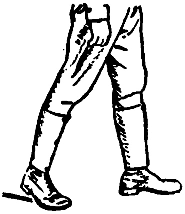
and step off in the new direction with the **right** foot.

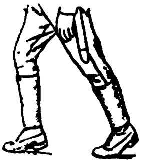
To March to the Rear

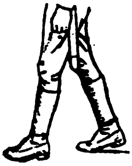
69. Being in march: 1. **To the rear**, 2. **MARCH.**

At the command **march**, given as the **right** foot strikes the ground, advance and plant the **left** foot; turn to the **right about** on the balls of both feet, and immediately step off with the **left** foot.

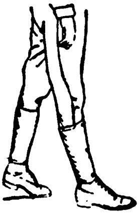








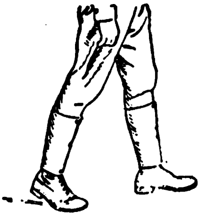
If marching in double time, turn to the right about, taking four steps in place, keeping the cadence, and then step off with the left foot.



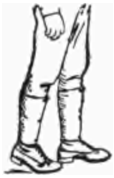
Change Step

70. Being in march: 1. **Change step**, 2. **MARCH.**

At the command **march**, given as the **right** foot strikes the ground,

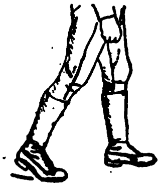


advance and plant the **left** foot;



plant the toe of the **right** foot near the heel of the left,

and step off with the **left** foot.



The change on the right foot is similarly executed, the command **march** being given as the left foot strikes the ground.

MANUAL OF ARMS

71. **Instruction of recruit in use of rifle, manual of arms, etc.** As soon as practicable the recruit is taught the use, nomenclature (Fig. 9, page 31), and care of his rifle; when fair progress has been made in the instruction without arms, he is taught the manual of arms; instruction without arms and that with arms alternate.

72. **Rules governing carrying of piece.** *The following rules govern the carrying of the piece:

First. **Piece habitually carried without cartridges in chamber or magazine.** The piece is not carried with cartridges in either the chamber or the magazine except when specifically ordered. When so loaded, or supposed to be loaded, it is habitually carried locked; that is, with the **safety lock** turned to the ''safe.'' At all other times it is carried unlocked, with the trigger pulled.

Second. **Inspection of pieces when troops are formed and when dismissed.** Whenever troops are formed under arms, pieces are immediately inspected at the commands: 1. **Inspection** 2. **ARMS** (par. 95), 3. **Order (Right shoulder, port)**, 4. **ARMS.**

A similar inspection is made immediately before dismissal.

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*See "Enfield Rifle," Appendix, page 81.

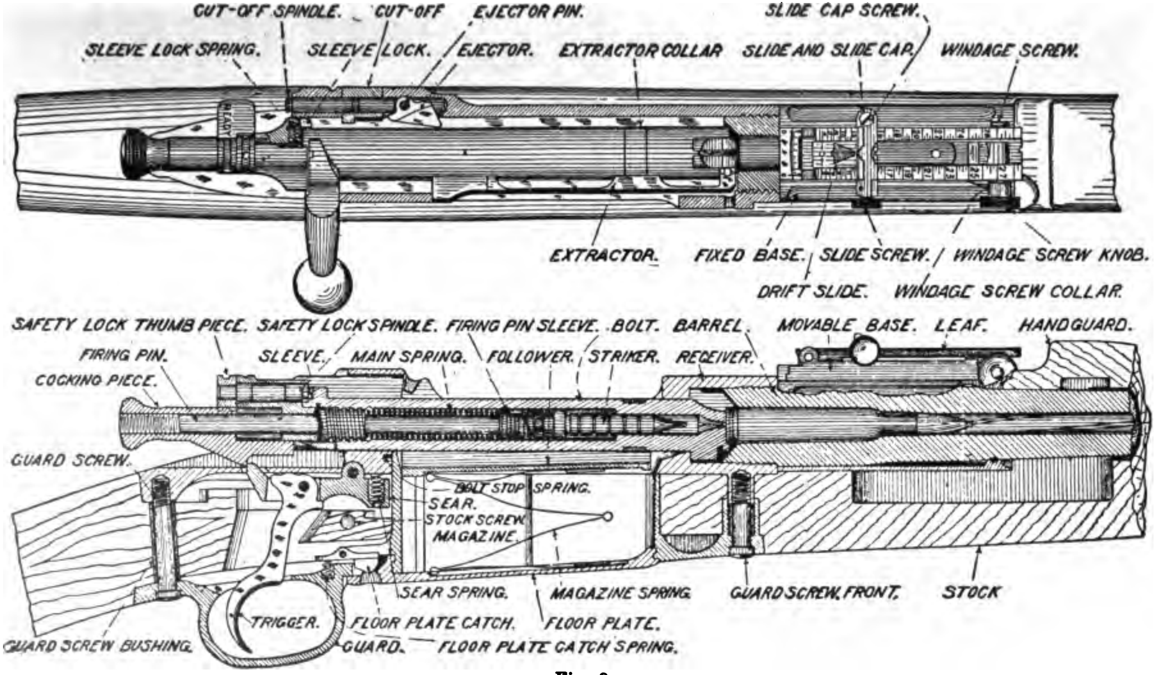

CUT-OFF SPINDLE.
CUT-OFF
EJECTOR PIN.
SLIDE CAP SCREW.
SLEEVE LOCK SPRING.
SLEEVE
LOCK.
EJECTOR.
EXTRACTOR COLLAR
SLIDE AND SLIDE CAP.
WINDAGE SCREW.
READY
EXTRACTOR.
FIXED BASE.
SLIDE SCREW.
WINDAGE SCREW KNOB.
DRIFT SLIDE.
WINDAGE SCREW COLLAR.
SAFETY LOCK THUMB PIECE.
SAFETY LOCK SPINDLE.
FIRING PIN SLEEVE.
BOLT.
BARREL.
MOVABLE BASE.
LEAF.
HANDGUARD.
FIRING PIN.
SLEEVE.
MAIN SPRING.
FOLLOWER.
STRIKER.
RECEIVER.
COCKING PIECE.
GUARD SCREW.
BOLT STOP SPRING.
SEAR.
STOCK SCREW
MAGAZINE.
SEAR SPRING.
MAGAZINE SPRING.
GUARD SCREW, FRONT.
STOCK
TRIGGER.
FLOOR PLATE CATCH.
FLOOR PLATE.
GUARD SCREW BUSHING.
GUARD.
FLOOR PLATE CATCH SPRING.

Fig. 9

If cartridges are found in the chamber or magazine they are removed and placed in the belt.

Third. **Cut-off habitually turned "off."** The cut-off is kept turned "off" except when cartridges are actually used.

Fourth. **Bayonet habitually not carried fixed.** The bayonet is not fixed (par. 92), except in bayonet exercise, on guard, or for combat.

Fifth. **"Fall in" executed at order; "attention" resumed at order.** **Fall in** is executed with the piece at the order arms. **Fall out, rest, and at ease** are executed as without arms (par. 49). On resuming **attention** the position of order arms is taken.

Sixth. **If at order, pieces brought to right shoulder at command "march"; execution of movements at trail; piece brought to trail in certain movements executed from order.** If at the order, unless otherwise prescribed, the piece is brought to the right shoulder at the command **march,** the three motions corresponding with the first three steps. Movements may be executed at the trail by prefacing the preparatory command with the words **at trail;** as, 1. **At trail, forward,** 2. **MARCH;** the trail is taken at the command **march.**

When the facings, alignments, open and close ranks, taking interval or distance, and assemblings are executed from the order, raise the piece to the trail while in motion and resume the order on halting.

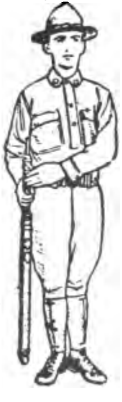
Seventh. **Piece brought to order on halting.** The piece is brought to the order on halting. The execution of the order begins when the halt is completed.

Eighth. **Holding disengaged hand in double time.** A disengaged hand in double time is held as when without arms.

73. **Rules governing manual of arms.** The following rules govern the execution of the manual of arms:

First. **Position of left hand at balance.** In all positions of the left hand at the balance (center of gravity, bayonet unfixed) the thumb clasps the piece; the sling is included in the grasp of the hand.

Second. **Positions of piece "diagonally across the body."** In all positions of the piece "diagonally across the body" the position of the piece, left arm and hand are the same as in port arms. (Par. 76.)



Third. **Next to last motion in resuming order from any position; piece to strike ground gently.** In resuming the order from any position in the manual, the motion next to the last concludes with the butt of the piece about 3 inches from the ground, barrel to the rear, the left hand above and near the right, steadying the piece, fingers extended and joined, forearm and wrist straight and inclining downward, all fingers of the right hand grasping the piece. To complete the order, lower the piece gently to the ground with the right hand, drop the left quickly by the side, and take the position of order arms.

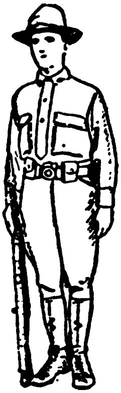
Allowing the piece to drop through the right hand to the ground, or other similar abuse of the rifle to produce effect in executing the manual is prohibited.

Fourth. **Cadence of motions; at first attention to be paid to details of motion.** The cadence of the motions is that of quick time; the recruits are first required to give their whole attention to the details of the motions, the cadence being gradually acquired as they become accustomed to handling their pieces. The instructor may require them to count aloud in cadence with the motions.

Fifth. **Execution of manual "by the numbers."** The manual is taught at a halt and the movements are for the purpose of instruction, divided into motions and executed in detail; in this case the command of **execution** determines the prompt execution of the first motion, and the commands, **two, three, four,** that of the other motions.

To execute the movements in detail, the instructor first cautions: **By the numbers**; all movements divided into motions are then executed as above explained until he cautions: **Without the numbers**; or commands movements other than those in the manual of arms.

Sixth. **Regular positions assumed without regard to previous positions; carrying rifle in any position.** Whenever circumstances require, the regular positions of the manual of arms and the firings may be ordered without regard to the previous position of the piece.

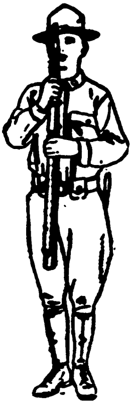


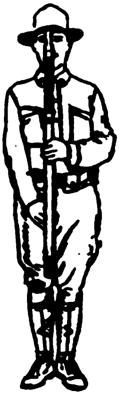
Under the exceptional conditions of weather or fatigue the rifle may be carried in any manner directed.

74. **Position of order arms standing:** The butt rests evenly on the ground, barrel to the rear, toe of the butt on a line with toe of, and touching, the right shoe, arms and hands hanging naturally, right hand holding the piece between the thumb and fingers.

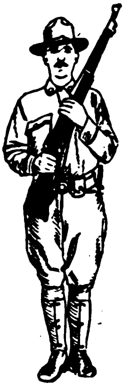
75. Being at order arms: 1. **Present,** 2. **ARMS.**

With the right hand carry the piece in front of the center of the body, barrel to the rear and vertical, grasp it with the left hand at the balance (par. 73, First), forearm horizontal and resting against the body.





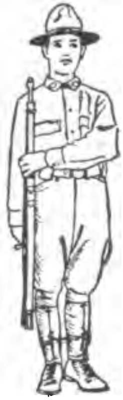
TWO. Grasp the small of the stock with the right hand.



76. Being at order arms. 1. **Port,** 2. **ARMS.**

With the right hand raise and throw the piece diagonally across the body, grasp it smartly with both hands; the right, palm down, at the small of the stock; the left, palm up, at the balance (par. 73, First); barrel up, sloping to the left and crossing opposite the junction of the neck with the left shoulder; right forearm horizontal; left forearm resting against the body; the piece in a vertical plane parallel to the front.

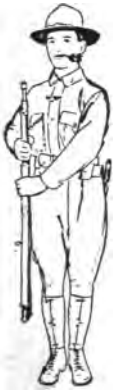
77. Being at present arms: 1. **Port,** 2. **ARMS.**
Carry the piece diagonally across the body and take the position of port arms. (Par. 76.)



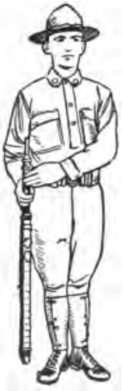
78. Being at port arms: 1. **Present,** 2. **ARMS.**
Carry the piece to a vertical position in front of the center of the body and take the position of present arms. (Par. 75.)

79. Being at present or port arms: 1. **Order,** 2. **ARMS.**

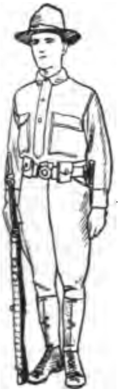
Let go with the right hand; lower and carry the piece to the right with the left hand;



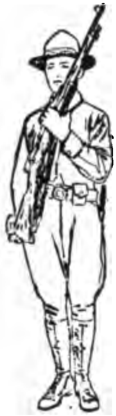
regrasp it with the right hand just above the lower band;



let go with the left hand, and take the next to the last position (par. 73, Third) in coming to the order.

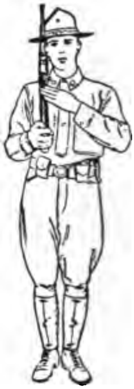


TWO. Complete the order.

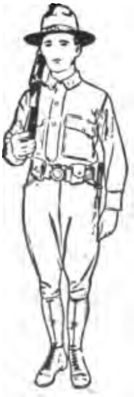


80. Being at order arms: 1. Right shoulder, 2. ARMS.

With the right hand raise and throw the piece diagonally across the body; carry the right hand quickly to the butt, embracing it, the heel between the first two fingers.



TWO. Without changing the grasp of the right hand, place the piece on the right shoulder, barrel up and inclined at an angle of about 45° from the horizontal, trigger guard in the hollow of the shoulder, right elbow near the side, the piece in a vertical plane perpendicular to the front; carry the left hand, thumb and fingers extended and joined, to the small of the stock, tip of the forefinger touching the cocking piece, wrist straight and elbow down.



THREE. Drop the left hand by the side.

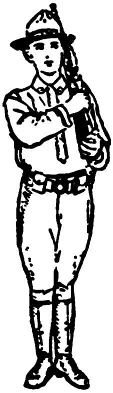
81. Being at right shoulder arms: 1. **Order,** 2. **ARMS.**
Press the butt down quickly and throw the piece diagonally across the body (par. 73, Second), the right hand retaining the grasp of the butt. **(TWO), (THREE)** Execute order arms as described from port arms. (Par. 79.)

82. Being at port arms: 1. **Right shoulder,** 2. **ARMS.**
Change the right hand to the butt. **(TWO), (THREE)** As in right shoulder arms from order arms. (Par. 80.)

83. Being at right shoulder arms: 1. **Port,** 2. **ARMS.**
Press the butt down quickly and throw the piece diagonally across the body (par. 73, Second), the right hand retaining its grasp of the butt. **(TWO)** Change the right hand to the small of the stock.

84. Being at the right shoulder arms: 1. **Present,** 2. **ARMS.**
Execute port arms (par. 83). **(THREE)** Execute present arms. (Par. 78.)

85. Being at present arms: 1. **Right shoulder,** 2. **ARMS.**
Execute port arms (par. 77). **(TWO), (THREE), (FOUR)** Execute right shoulder arms as from port arms. (Par. 82.)

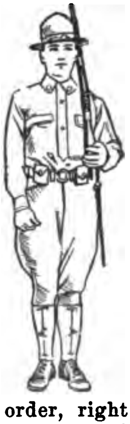


86. Being at port arms: 1. **Left shoulder,** 2. **ARMS.**

Carry the piece with the right hand and place it on the left shoulder, barrel up, trigger guard in the hollow of the shoulder; at the same time grasp the butt with the left hand, heel between first and second fingers, thumb and fingers closed on the stock.

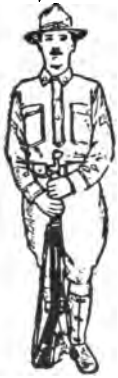
(TWO) Drop the right hand by the side.

Being at left shoulder arms: 1. **Port,** 2. **ARMS.**
Grasp the piece with the right hand at the small of the stock. **(TWO)** Carry the piece to the right with the right hand, regrasp it with the left, and take the position of port arms. (Par. 76.)



Left shoulder arms may be ordered directly from the order, right shoulder or present, or the reverse. At the command **arms** execute **port arms** and continue in cadence to the position ordered.

LESSON 3



87. Being at order arms: 1. **Parade,** 2. **REST.**

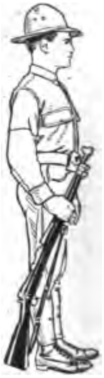
Carry the right foot 6 inches straight to the rear, left knee slightly bent; carry the muzzle in front of the center of the body, barrel to the left; grasp the piece with the left hand just below the stacking swivel, and with the right hand below and against the left.

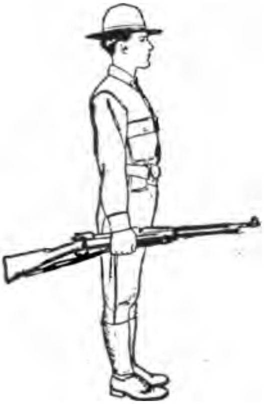
Being at parade rest: 1. **Squad,** 2. **ATTENTION.**

Resume the order, the left hand quitting the piece opposite the right hip. (Par. 74.)

88. Being at order arms: 1. **Trail,** 2. **ARMS.**

Raise the piece, right arm slightly bent, and incline the muzzle forward so that the barrel makes an angle of about 30° with the vertical.





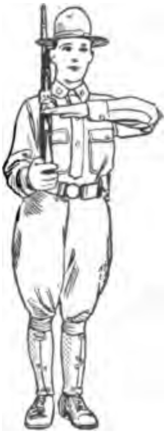
When it can be done without danger or inconvenience to others, the piece may be grasped at the balance and the muzzle lowered until the piece is horizontal; a similar position in the left hand may be used.

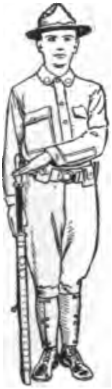
89. Being at trail arms: 1. **Order,** 2. **ARMS.**
Lower the piece with the right hand and resume the order. (Par. 74.)

Rifle Salute

90. Being at right shoulder arms: 1. **Rifle,** 2. **SALUTE.**

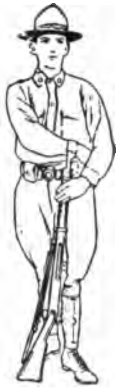
Carry the left hand smartly to the small of the stock, forearm horizontal, palm of hand down, thumb and fingers extended and joined, forefinger touching end of cocking piece; look toward the person saluted. **(TWO)** Drop left hand by the side; turn head and eyes to the front.





91. Being at order or trail arms: 1. **Rifle,** 2. **SALUTE.**

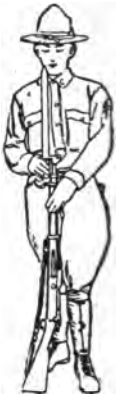
Carry the left hand smartly to the right side, palm of the hand down, thumb and fingers extended and joined, forefinger against piece near the muzzle; look toward the person saluted. **(TWO)** Drop the left hand by the side; turn the head and eyes to the front.



The Bayonet

92. Being at order arms: 1. **Fix**, 2. **BAYONET.**

If the bayonet scabbard is carried on the belt: Execute parade rest (par. 87); grasp the bayonet with the right hand, back of hand toward the body; draw the bayonet from the scabbard and fix it on the barrel, glancing at the muzzle; resume the order. (Par. 74.)



If the bayonet is carried on the haversack: Draw the bayonet with the left hand and fix it in the most convenient manner.

*93. Being at order arms: 1. **Unfix**, 2. **BAYONET.**

If the bayonet scabbard is carried on the belt: Execute parade rest (par. 87); grasp the handle of the bayonet firmly with the right hand, pressing the spring with the forefinger of the right hand; raise the bayonet until the handle is about 12 inches above the muzzle of the piece; drop the point to the left, back of the hand toward the body, and, glancing at the scabbard, return the bayonet, the blade passing between the left arm and the body; regrasp the piece with the right hand and resume the order. (Par. 74.)

If the bayonet scabbard is carried on the haversack: Take the bayonet from the rifle with the left hand and return it to the scabbard in the most convenient manner.

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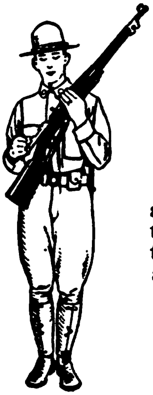
*See "Enfield Rifle," Appendix, page 81.

If marching or lying down, the bayonet is fixed and unfixed in the most expeditious and convenient manner and the piece returned to the original position.

Fix and unfix bayonet are executed with promptness and regularity but not in cadence.

94. Charge bayonet. Whether executed at halt or in motion, the bayonet is held toward the opponent as in the position of **guard** in the Manual for Bayonet Exercise.

Exercises for instruction in bayonet combat are prescribed in the Manual for Bayonet Exercise.



The Inspection

95. Being at order arms: 1. **Inspection,** 2. **ARMS.**

At the second command take the position of port arms (par. 76). **(TWO)** Seize the bolt handle with the thumb and forefinger of the right hand, turn the handle up, draw the bolt back, and glance at the chamber. Having found the chamber empty, or having emptied it, raise the head and eyes to the front.

*96. Being at inspection arms: 1. **Order (Right shoulder, port),** 2. **ARMS.**

At the preparatory command push the bolt forward, turn the handle down, pull the trigger, and resume port arms (par. 76). At the command arms, complete the movement ordered. (Par. 74.)

To Dismiss the Squad

97. Being at halt: 1. **Inspection,** 2. **ARMS,** 3. **Port,** 4. **ARMS,** 5. **DISMISSED.** (Par. 72, Second.)

SCHOOL OF THE SQUAD

98. Grouping into squads. Soldiers are grouped into squads for purposes of instruction, discipline, control, and order.

99. Composition of Squad; object of squad movements. The squad proper consists of a corporal and seven privates.

The movements in the School of the Squad are designed to make the squad a fixed unit and to facilitate the control and movement of the company. If the number of men grouped is more than 3 and less than 12, they are formed as a squad of four files, the excess above 8 being posted as file closers. If the number grouped is greater than 11, 2 or more squads are formed and the group is termed a platoon.

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*See "Enfield Rifle," Appendix, page 81.

For the instruction of recruits, these rules may be modified.

100. **Squad leader; his post.** The corporal is the squad leader, and when absent is replaced by a designated private. If no private is designated, the senior in length of service acts as leader.

The corporal, when in ranks, is posted as the left man in the front rank of the squad.

When the corporal leaves the ranks to lead his squad, his rear rank man steps into the front rank, and the file remains blank until the corporal returns to his place in ranks, when his rear rank man steps back into the rear rank.

101. **Preservation of integrity of squads in battle.** In battle officers and sergeants endeavor to preserve the integrity of squads; they designate new leaders to replace those disabled, organize new squads when necessary, and see that every man is placed in a squad.

Men are taught the necessity of remaining with the squad to which they belong and, in case it be broken up or they become separated therefrom, to attach themselves to the nearest squad and platoon leaders, whether these be of their own or of another organization.

102. **Certain movements executed by squad as in School of the Soldier.** The squad executes the **halt** (par. 67), **rests** (pars. 49-50), **facings** (pars. 53-54), **steps and marchings** (**pars.** 56-70), and the **manual of arms** (pars. 71-97), as explained in the School of the Soldier.

To Form the Squad

103. To form the squad the instructor places himself 3 paces in front of where the center is to be and commands: **FALL IN.**

The men assemble at attention, pieces at the order (par. 74), and are arranged by the corporal in double rank, as nearly as practicable in order of height from right to left, each man dropping his left hand as soon as the man on his left has his interval (par. 21). The rear rank forms with distance of 40 inches.

The instructor then commands: **COUNT OFF.**

At this command all except the right file execute **eyes right** (par. 52), and beginning on the right, the men in each rank count **one, two, three, four**; each man turns his head and eyes to the front as he counts.

Pieces are then inspected (par. 95).

Alignments

104. To align the squad, the base file or files having been established: 1. **Right (Left)**, 2. **DRESS**, 3. **FRONT.**

At the command **dress** all men place the left hand upon the hip (par. 21) (whether dressing to the right or left); each man, except the base file, when on or near the new line executes **eyes right** (par. 52), and, taking steps of 2 or 3 inches, places himself so that his right arm rests lightly against the arm of the man on his right, and so that his eyes and shoulders are in line with those of the men on his right; the rear rank men cover in file.

The instructor verifies the alignment of both ranks from the right flank and orders up or back such men as may be in rear, or in advance, of the line; only the men designated move.

At the command **front**, given when the ranks are aligned, each man turns his head and eyes to the front and drops his left hand by his side.

In the first drills the basis of the alignment is established on, or parallel to, the front of the squad; afterwards, in oblique directions.

Whenever the position of the base file or files necessitates a considerable movement by the squad, such movement will be executed by marching to the front or oblique, to the flank or backward, as the case may be, without other command, and at the trail.

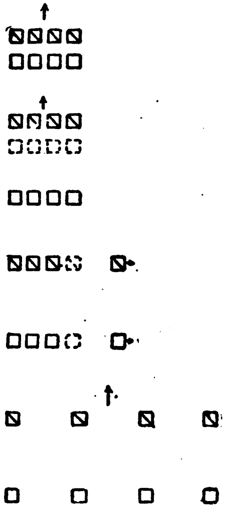
105. To preserve the alignment when marching: **GUIDE RIGHT (LEFT).**

The men preserve their intervals from the side of the guide, yielding to pressure from that side and resisting pressure from the opposite direction; they recover intervals, if lost, by gradually opening out or closing in; they recover alignment by slightly lengthening or shortening the step; the rear-rank men cover their file leaders at 40 inches.

In double rank, the front-rank man on the right, or designated flank, conducts the march; when marching faced to the flank, the leading man of the front rank is the guide.

To Take Intervals and Distances

106. Being in line at a halt: 1. **Take interval,** 2. **To the right (left),** 3. **MARCH,** 4. **Squad,** 5. **HALT.**



Being in line at a halt.

1. **Take interval,** 2. **To the right (left)**

At the second command the rear-rank men march backward (par. 69) 4 steps and halt;

3. MARCH

At the command **march** all face to the right and the leading man of each rank steps off; the other men step off in succession, each following the preceding man at 4 paces, rear-rank men marching abreast of their file leaders.

4. Squad, 5. HALT

At the command **halt,** given when all have their intervals, all halt and face to the front.

Fig. 10

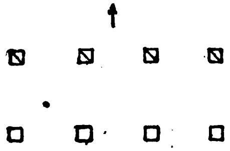
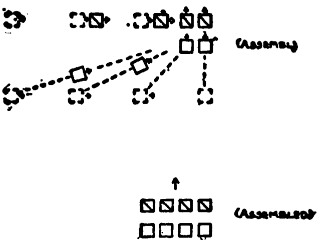


Fig. 11

107. Being at intervals, to assemble the squad:

(At Intervals)



1. **Assemble, to the right (left),**
2. **MARCH**

The front-rank man on the right stands fast, the rear-rank man on the right closes to 40 inches. The other men face to the right, close by the shortest line, and face to the front.

Fig. 11a

108. Being in line at a halt and having counted off 1. **Take distance,** 2. **MARCH,** 3. **Squad,** 4. **HALT.**

At the command **march** No. 1 of the front rank moves straight to the front; Nos. 2, 3, and 4 of the front rank and Nos. 1, 2, 3, and 4 of the rear rank, in the order named, move straight to the front, each stepping off so as to follow the preceding man at 4 paces. The command **halt** is given when all have their distances.

In case more than one squad is in line, each squad executes the movement as above. The guide of each rank of numbers is right.

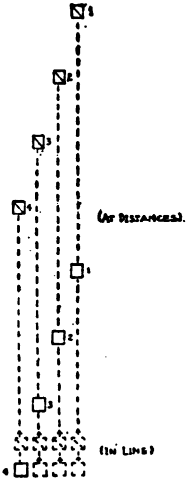


Fig. 12

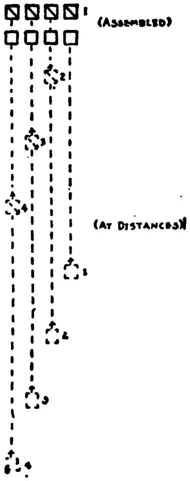
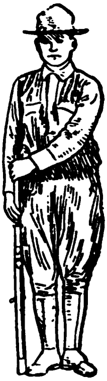


Fig. 13

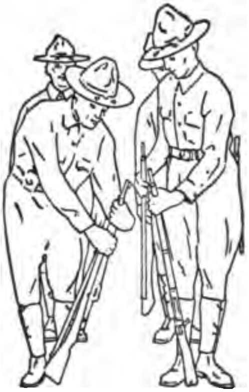
109. Being at distances, to assemble the squad: 1. **Assemble,** 2. **MARCH.**

No. 1 of the front rank stands fast; the other numbers move forward to their proper places in line.

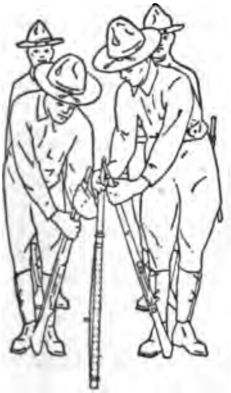


To Stack and Take Arms

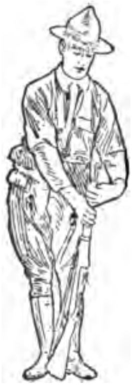
110. Being in line at a halt: **STACK ARMS.** Each even number of the front rank grasps his piece with the left hand at the upper band



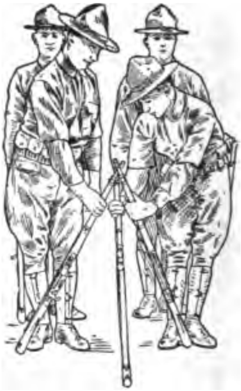
and rests the butt between his feet, barrel to the front, muzzle inclined slightly to the front and opposite the center of the interval on his right, the thumb and forefinger raising the stacking swivel; each even number of the rear rank then passes his piece, barrel to the rear, to his file leader, who grasps it between the bands with his right hand



and throws the butt about 2 feet in advance of that of his own piece and opposite the right of the interval, the right hand slipping to the upper band, the thumb and forefinger raising the stacking swivel, which he engages with that of his own piece;



each **odd** number of the **front** rank raises his piece with the right hand, carries it well forward, barrel to the front; the left hand, guiding the stacking swivel,



engages the lower hook of the swivel of his own piece with the free hook of that of the even number of the rear rank; he then turns the barrel outward into the angle formed by the other two pieces and lowers the butt to the ground, to the right and against the toe of his right shoe.

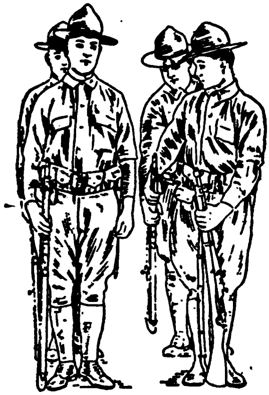
The stacks made, the loose pieces are laid on them by the **even** numbers of the front rank.

When each man has finished handling pieces, he takes the position of the soldier.

111. Being in line behind the stacks: **TAKE ARMS.**

(See preceding illustrations.)

The loose pieces are returned by the **even** numbers of the **front** rank; each **even** number of the **front** rank grasps his own piece with the left hand, the piece of his rear rank man with his right hand, grasping both between the bands; each **odd** number of the **front** rank grasps his piece in the same way with the right hand; disengages it by raising the butt from the ground and then turning the piece to the right, detaches it from the stack; each **even** number of the front rank disengages and detaches his piece by turning it to the left,



and, then passes the piece of his rear-rank man to him,

and all resume the order.

112. Should any squad have Nos. 2 and 3 blank files, No. 1 rear rank takes the place of No. 2 rear rank in making and breaking the stack; the stacks made or broken, he resumes his post.

Pieces not used in making the stacks are termed loose pieces.

Pieces are never stacked with the bayonet fixed.

The Oblique March

113. For the instruction of recruits, the squad being in column or correctly aligned (par. 104), the instructor causes the squad to face half right or half left (pars. 18; 53), points out to the men their relative positions, and explains that these are to be maintained in the oblique march.

114. 1. **Right (Left) oblique**, 2. **MARCH.**

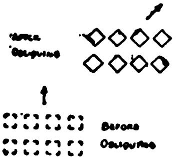


Fig. 14

Each man steps off in a direction of 45° to the right of his original front. He preserves his relative position, keeping his shoulders parallel to those of the guide (the man on the right front of the line or column), and so regulates his steps that the ranks remain parallel to their original front.

At the command **halt** the men halt faced to front.

To resume the original direction: 1. **Forward**, 2. **MARCH.**

The men half face to the left in marching and then move straight to the front.

If at **half step** or **mark time** while oblique, the oblique march is resumed by the commands: 1. **Oblique**, 2. **MARCH.**

To Turn on Moving Pivot

115. Being in line: 1. **Right (Left) turn**, 2. **MARCH.**

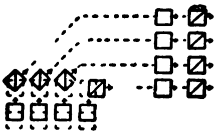


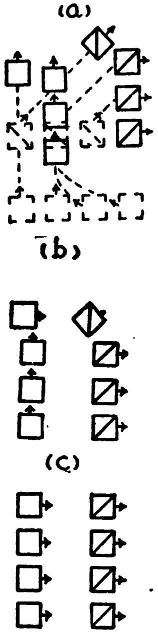
Fig. 15

The movement is executed by each rank successively and on the same ground. At the second command, the pivot man of the front rank faces to the right in marching (par. 53) and takes the half step (par. 63); the other men of the rank oblique to the right until opposite their places in line, then execute a second right oblique (par. 114) and take the half step on arriving abreast of the pivot man. All glance toward the marching flank while at half step and take the full step without command as the last man arrives on the line.

Right (Left) half turn is executed in a similar manner. The pivot man makes a half change of direction to the right and the other men make quarter changes in obliquing.

To Turn on Fixed Pivot.

116. Being in line, to turn and march: 1. **Squad right (left),** 2. **MARCH.**



See (a)
Fig. 16

At the second command, the right flank man in the front rank faces to the right in marching (par. 53) and marks time (par. 62); the other front rank men oblique to the right (par. 114), place themselves abreast of the pivot, and mark time. In the rear rank the third man from the right, followed in column by the second and first, moves straight to the front, until in rear of his front-rank man, when all face to the right in marching and mark time; the other number of the rear rank moves straight to the front four paces and places himself abreast of the man on his right. Men on the new line glance toward the marching flank while marking time and, as the last man arrives on the line, both ranks execute **forward, MARCH,** without command.

117. Being in line, to turn and halt: 1. **Squad right (left),** 2. **MARCH,** 3. **Squad,** 4. **HALT.**

The third command is given immediately after the second. The turn is executed as prescribed in the preceding paragraph except that all men, on arriving on the new line, mark time until the fourth command is given, when all halt. The fourth command should be given as the last man arrives on the line.

118. Being in line, to turn about and march: **1. Squad right (left) about,** 2. **MARCH.**

At the second command, the front rank twice executes **squad right** (par. 116), initiating the second **squad right** when the man on the marching flank has arrived abreast of the rank. In the rear rank the third man from the right, followed by the second and first in column, moves straight to the front until on the prolongation of the line to be occupied by the rear rank; changes direction to the right; moves in the new direction until in rear of his front-rank man, when all face to the right in marching (par. 53), mark time (par. 62), and glance toward the marching flank. The fourth man marches on the left of the third to his new position; as he arrives on the line, both ranks execute **forward, MARCH** (par. 59), without command.

119. Being in line, to turn about and halt: 1. **Squad right (left) about,** 2. **MARCH,** 3. **Squad,** 4. **HALT.**

The third command is given immediately after the second. The turn is executed as prescribed in the preceding paragraph except that all men, on arriving on the new line, mark time until the fourth command is given, when all halt. The fourth command should be given as the last man arrives on the line.

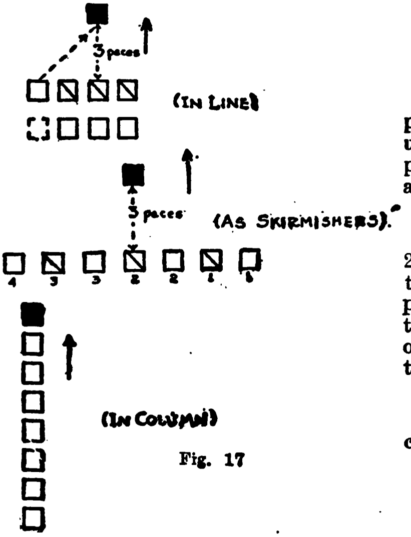


Fig. 17

To Follow the Corporal

120. Being assembled or deployed, to march the squad without unnecessary commands the corporal places himself in front of it and commands: **FOLLOW ME.**

If in line or skirmish line, No. 2 of the front rank follows in the trace of the corporal at about 3 paces, the other men conform to the movements of No. 2, guiding on him and maintaining their relative positions.

If in column, the head of the column follows the corporal.

To Deploy as Skirmishers

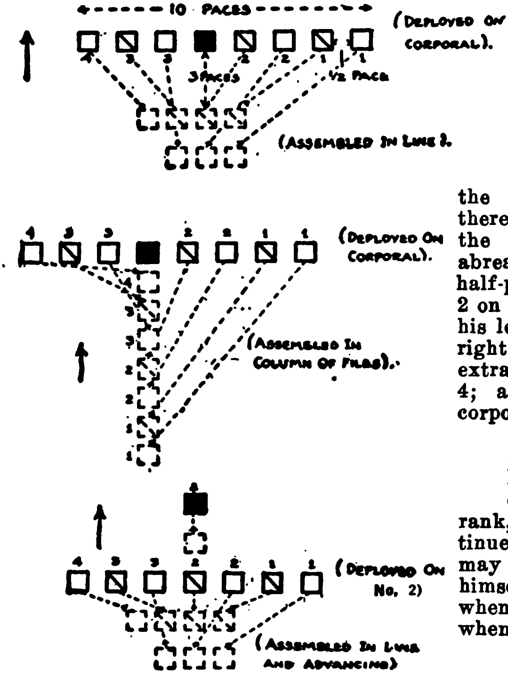

10 PACES
(DEPLOYED ON CORPORAL).
4
3
3
2
2
1
1
3 PACES
½ PACE
(ASSEMBLED IN LINE 2.
4
3
3
2
2
1
1
(DEPLOYED ON CORPORAL).
(ASSEMBLED IN COLUMN OF FILES).
4
3
3
2
2
1
1
(DEPLOYED ON No. 2)
(ASSEMBLED IN LINE AND ADVANCING)

Fig. 18

121. **Being** in any formation, assembled: 1. **As skirmishers**, 2. **MARCH.**

The corporal places himself in front of the squad, if not already there. Moving at a run, the men place themselves abreast of the corporal at half-pace intervals, Nos. 1 and 2 on his right, Nos. 3 and 4 on his left, rear-rank men on the right of their file leaders, extra men on the left of No. 4; all then conform to the corporal's gait.

When the squad is acting alone, skirmish line is similarly formed on No. 2 of the front rank, who stands fast or continues the march, as the case may be; the corporal places himself in front of the squad when advancing, and in rear when halted.

When deployed as skirmishers, the men march at ease, pieces at the trail unless otherwise ordered.

The corporal is the guide when in the line; otherwise No. 2 front rank is the guide.

122. The normal interval between skirmishers is one-half pace, resulting practically in one man per yard of front. The front of a squad thus deployed as skirmishers is about 10 paces.

LESSON 4

To Increase or Diminish Intervals

123. If assembled, and it is desired to deploy at greater than the normal interval; or if deployed, and it is desired to increase or decrease the interval: 1. **As skirmishers, (so many) paces**, 2. **MARCH.**

Intervals are taken at the indicated number of paces. If already deployed, the men move by the flank toward or away from the guide.

The Assembly

124. Being deployed: 1. **Assemble**, 2. **MARCH.**

The men move toward the corporal and form in their proper places.

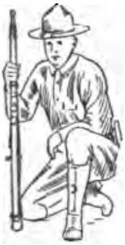
If the corporal continues to advance, the men move in double time, form, and follow him.

The assembly while marching to the rear is not executed.

Kneeling and Lying Down

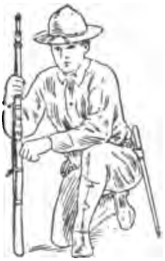
125. If standing: **KNEEL.**

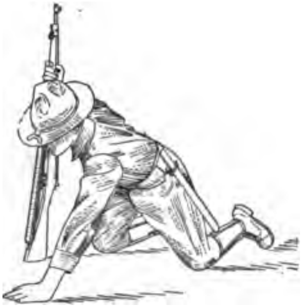
Half face to the right (par. 53); carry the right toe about 1 foot to the left rear of the left heel; kneel on right knee, sitting as nearly as possible on the right heel; left forearm across left thigh; piece remains in position of order arms, right hand grasping it above lower band.



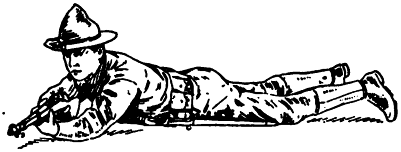
126. If standing or kneeling: **LIE DOWN.**

Kneel, but with right knee against left heel;





carry back the left foot and lie flat on the belly, inclining body about 35° to the right, piece horizontal, barrel up, muzzle off the ground and pointed to the front; elbows on the ground; left hand at the balance, right hand grasping the small of the stock opposite the neck. This is the position of order arms, lying down.



127. If kneeling or lying down: **RISE.**

If kneeling, stand up, faced to the front, on the ground marked by the left heel.

If lying down, raise body on both knees; stand up, faced to the front, on the ground marked by the knees.

128. If lying down: **KNEEL.**

Raise the body on both knees; take the position of kneel.

129. Use of kneeling and lying down positions in double rank; sitting position instead of kneeling. In double rank, the positions of kneeling and lying down are ordinarily used only for the better utilization of cover.

When deployed as skirmishers (par. 121), a sitting position may be taken in lieu of the position kneeling.

LOADINGS AND FIRINGS

130. Commands for loading and firing same for all positions; firings executed at halt; action of rear rank; instruction preceded by command for loading. The commands for loading and firing are the same whether standing, kneeling, or lying down. The firings are always executed at a halt.

When kneeling or lying down in double rank, the rear rank does not load, aim, or fire.

The instruction in firing will be preceded by a command for loading.

Loadings are executed in line and skirmish line only.

131. Pieces once loaded, so kept until command to unload. Pieces having been ordered loaded are kept loaded without command until the command **unload,** or **inspection arms,** fresh clips being inserted when the magazine is exhausted.

132. Indication of aiming point or target. The aiming point or target is carefully pointed out. This may be done before or after announcing the sight setting. Both are indicated before giving the command for firing, but may be omitted when the target appears suddenly and is unmistakable; in such case battle sight is used if no sight setting is announced.

133. Designation of aiming point or target continues until change is ordered. The target or aiming point having been designated and the sight setting announced, such designation or announcement need not be repeated until a change of either or both is necessary.

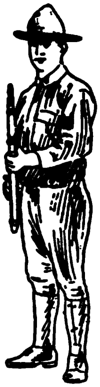
Troops are trained to continue their fire upon the aiming point or target designated, and at the sight setting announced, until a change is ordered.

134. Taking position of load. If the men are not already in the position of load, that position is taken at the announcement of the sight setting; if the announcement is omitted, the position is taken at the first command for firing.

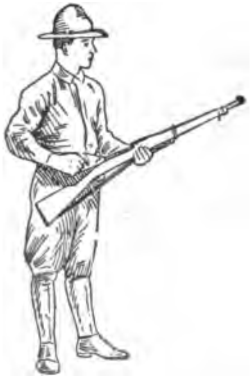
135. Use of sling discretionary. When deployed, the use of the sling as an aid to accurate firing is discretionary with each man.

*136. Being in line or skirmish line at halt:

1. **With dummy (blank or ball) cartridges, 2. LOAD.**



At the command **load** each front-rank man or skirmisher faces half right and carries the right foot to the right, about 1 foot, to such position as will insure the greatest firmness and steadiness of the body; raises, or lowers, the piece and drops it into the left hand at the balance, the left thumb extended along the stock, muzzle at the height of the breast, and turns the cut-off up.



With the right hand he turns and draws the bolt back,

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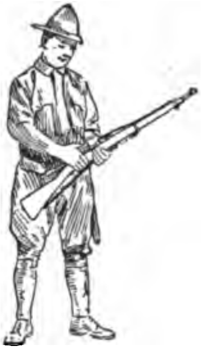
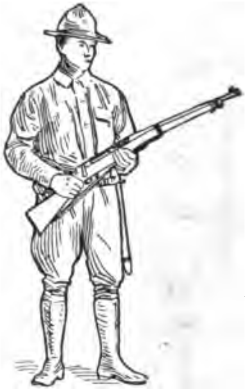
*See "Enfield Rifle," Appendix, page 81.

136 (contd.)

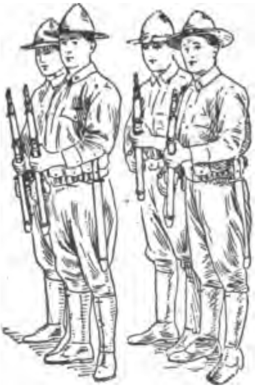


takes a loaded clip and inserts the end in the clip slots, places the thumb on the powder space of the top cartridge, the fingers extending around the piece and tips resting on the magazine floor plate;

forces the cartridges into the magazine by pressing down with the thumb; without removing the clip, thrusts the bolt home, turning down the handle; turns the safety lock to the "safe,"

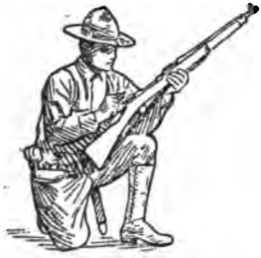


and carries the hand to the small of the stock.

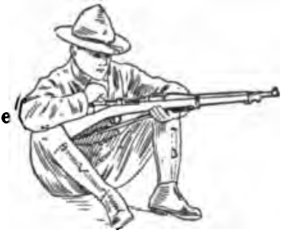


Each rear-rank man moves to the right front, takes a similar position opposite the interval to the right of his front-rank man, muzzle of the piece extending beyond the front rank and loads.

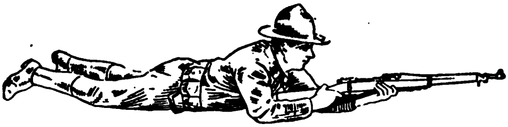
A skirmish line may load while moving, the pieces being held as nearly as practicable in the position of load.



If kneeling or sitting, the position of the piece is similar; if kneeling, the left forearm rests on the left thigh;



if sitting the elbows are supported by the knees.



If lying down, the left hand steadies and supports the piece at the balance, the toe of the butt resting on the ground, the muzzle off the ground.

For reference, these positions (standing, kneeling, and lying down) are designated as that of load.

137. For instruction in loading: 1. **Simulate**, 2. **LOAD**.

Executed as above described except that the cut-off remains ''off'' and the handling of cartridges is simulated.

The recruits are first taught to **simulate** loading and firing; after a few lessons dummy cartridges may be used. Later, blank cartridges may be used.

*138. The rifle may be used as a single loader by turning the magazine ''off.'' The magazine may be filled in whole or in part while ''off'' or ''on'' by pressing cartridges singly down and back until they are in the proper place. The use of the rifle as a single loader is, however, to be regarded as exceptional.

To Unload

*139. **UNLOAD.**

Take the position of load (par. 136), turn the safety lock up and move bolt alternately back and forward until all the cartridges are ejected.

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*See "Enfield Rifle," Appendix, page 81.

After the last cartridge is ejected the chamber is closed by first thrusting the bolt slightly forward to free it from the stud holding it in place when the chamber is open, pressing the follower down and back to engage it under the bolt and then thrusting the bolt home; the trigger is pulled. The cartridges are then picked up, cleaned, and returned to the belt, and the piece is brought to the order.

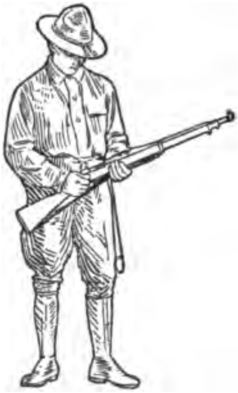
To Set the Sight

140. RANGE, ELEVEN HUNDRED (EIGHT-FIFTY, etc.), or **BATTLE SIGHT.** (Par. 134.)

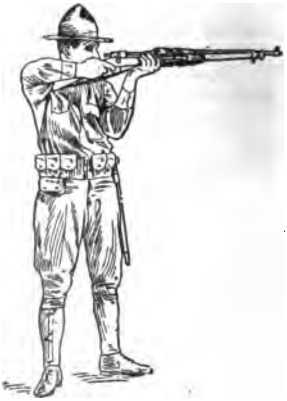
The sight is set at the elevation indicated. The instructor explains and verifies sight settings.

To Fire by Volley

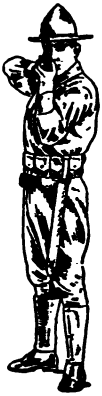
141. 1. **Ready,** 2. **AIM,** 3. **Squad,** 4. **FIRE.**



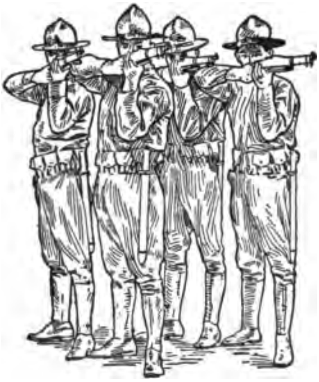
At the command ready turn the safety lock to the "ready";



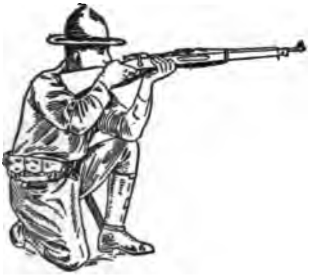
at the command aim raise the piece with both hands and support the butt firmly against the hollow of the right shoulder, right thumb clasping the stock, barrel horizontal, left elbow well under the piece, right elbow as high as the shoulder; incline the head slightly forward and a little to the right, cheek against the stock,



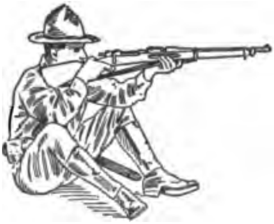
left eye closed, right eye looking through the notch of the rear sight so as to perceive the object aimed at, second joint of the forefinger resting lightly against the front of the trigger and taking up the slack; top of front sight is carefully raised into, and held in, the line of sight.



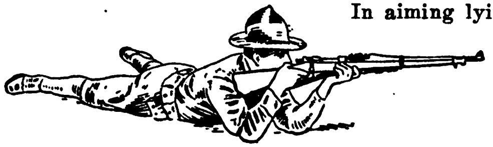
Each rear-rank man aims through the interval to the right of his file leader and leans slightly forward to advance the muzzle of his piece beyond the front rank.



In aiming kneeling (par. 125), the left elbow rests on the left knee, point of elbow in front of kneecap.



In aiming sitting, the elbows are supported by the knees.



In aiming lying down (par. 126), raise the piece with both hands; rest on both elbows and press the butt firmly against the right shoulder.

At the command fire press the finger against the trigger; fire without deranging the aim and without lowering or turning the piece; lower the piece in the position of **load** and load. (Par. 136.)

*142. To continue the firing: 1. **AIM**, 2. **Squad**, 3. **FIRE**.

Each command is executed as previously explained. **Load** (from magazine) is executed by drawing back and thrusting home the bolt with the right hand, leaving the safety lock, at the "ready."

To Fire at Will

143. **FIRE AT WILL.**

Each man, independently of the others, comes to the **ready** (par. 141), aims carefully and deliberately at the aiming point or target, **fires**, **loads**, and continues the firing until ordered to **suspend** or **cease firing** (pars. 146-147).

144. To increase (decrease) the rate of fire in progress the instructor shouts: **FASTER (SLOWER).**

Men are trained to fire at the rate of about three shots per minute at effective ranges and five or six at close ranges, devoting the minimum of time to loading and the maximum to deliberate aiming. To illustrate the necessity for deliberation, and to habituate men to combat conditions, small and comparatively indistinct targets are designated.

To fire by Clip

145. **CLIP FIRE.**

Executed in the same manner as **fire at will**, except that each man, after having exhausted the cartridges then in the piece, **suspends firing**.

To Suspend Firing

146. The instructor blows a long blast of the whistle and repeats same, if necessary, or commands: **SUSPEND FIRING.**

Firing stops; pieces are held, loaded and locked, in a position of readiness for instant resumption of firing, rear sights unchanged. The men continue to observe the target or aiming point, or the place at which the target disappeared, or at which it is expected to reappear.

This whistle signal may be used as a preliminary to **cease firing**.

To Cease Firing

*147. **CEASE FIRING.**

Firing stops; pieces not already there are brought to the position of load (par. 136); those not loaded, are loaded; sights are laid, pieces are locked and brought to the order.

Cease firing is used for long pauses, to prepare for changes of position, or to steady the men.

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*See "Enfield Rifle," Appendix, page 81.

148. Commands for suspending or ceasing fire may be given at any time after the preparatory command for firing, whether the firing has actually commenced or not.

THE USE OF COVER

149. **Individual instruction; things to be impressed upon the recruit.** The recruit should be given careful instruction in the individual use of cover.

It should be impressed upon him that, in taking advantage of natural cover, he must be able to fire easily and effectively upon the enemy; if advancing on an enemy, he must do so steadily and as rapidly as possible; he must conceal himself as much as possible while firing and while advancing. While setting his sight he should be under cover or lying prone.

150. **Practice in simulated firing from behind hillocks, trees, etc., firing around right side of concealment.** To teach him to fire easily and effectively, at the same time concealing himself from the view of the enemy, he is practiced in simulated firing in the prone, sitting, kneeling, and crouching positions, from behind hillocks, trees, heaps of earth or rocks, from depressions, gullies, ditches, doorways, or windows. He is taught to fire around the right side of his concealment whenever possible, or, when this is not possible, to rise enough to fire over the top of his concealment.

When these details are understood, he is required to select cover with reference to an assumed enemy and to place himself behind it in proper position for firing.

151. **Evil of remaining too long in one place; advancing from cover to cover by running, crawling, etc.** The evil of remaining too long in one place, however good the concealment, should be explained. He should be taught to advance from cover to cover, selecting cover in advance before leaving his concealment.

It should be impressed upon him that a man running rapidly toward an enemy furnishes a poor target. He should be trained in springing from a prone position behind concealment, running at top speed to cover and throwing himself behind it. He should also be practiced in advancing from cover to cover by crawling, or by lying on the left side, rifle grasped in the right hand, and pushing himself forward with the right leg.

152. **Action when fired on while acting independently.** He should be taught that, when fired on while acting independently, he should drop to the ground, seek cover, and then endeavor to locate his enemy.

153. **Proper advance and effectiveness of the fire of greater importance than cover.** The instruction of the recruit in the use of cover is continued in the combat exercises of the company, but he must then be taught that the proper advance of the platoon or company and the effectiveness of its fire is of greater importance than the question of cover for individuals. He should also be taught that he may not move about or shift his position in the firing line except the better to see the target.

OBSERVATION

154. **Importance of observation; training of recruit.** The ability to use his eyes accurately is of great importance to the soldier. The recruit

should be trained in observing his surroundings from positions and when on the march.

He should be practiced in pointing out and naming military features of the ground; in distinguishing between living beings; in counting distant groups of objects or beings; in recognizing colors and forms.

155. **Training in mechanism of firing line and estimating distances.** In the training of men in the mechanism of the firing line, they should be practiced in repeating to one another target and aiming point designations and in quickly locating and pointing out a designated target. They should be taught to distinguish, from a prone position, distant objects, particularly troops, both with the naked eye and with field glasses. Similarly, they should be trained in estimating distances.

SCHOOL OF THE COMPANY

156. **Captain responsible for instruction of officers and noncommissioned officers.** The captain is responsible for the theoretical and practical instruction of his officers and noncommissioned officers, not only in the duties of their respective grades, but in those of the next higher grades.

157. **Formation of company in double rank, according to height; division into squads.** The company in line is formed in double rank with the men arranged, as far as practicable, according to height from right to left, the tallest on the right.

The original division into squads is effected by the command: **COUNT OFF.** The squads, successively, from the right, count off as in the School of the Squad (par. 103), corporals placing themselves as Nos. 4 of the front rank. If the left squad contains less than six men, it is either increased to that number by transfers from other squads or is broken up and its members assigned to other squads and posted in the line of file closers. These squad organizations are maintained, by transfers if necessary, until the company becomes so reduced in numbers as to necessitate a new division into squads. No squad will contain less than six men.

158. **Division of company into platoons.** The company is further divided into two, three or four platoons, each consisting of not less than two, nor more than four squads. In garrison or ceremonies the strength of platoons may exceed four squads.

159. **Designation of squads and platoons.** At the formation of the company the platoons or squads are numbered consecutively from right to left and these designations do not change.

For convenience in giving commands and for reference, the designations, **right, center, left,** when in line, and **leading, center, rear,** when in column, are applied to platoons or squads. These designations apply to the actual right, left, center, head, or rear, in whatever direction the company may be facing. The **center squad** is the middle or right middle squad of the company.

The designation ''So-and-so's'' squad or platoon may also be used.

160. **Assignment of platoons; assignment of guides.** Platoons are assigned to the lieutenants and noncommissioned officers, in order of rank, as follows: 1. right; 2. left; 3. center (right center); 4. left center.

The noncommissioned officers next in rank are assigned as guides, one to each platoon. If sergeants still remain, they are assigned to platoons as additional guides. When the platoon is deployed, its guide, or guides, accompany the platoon leader.

During battle, these assignments are not changed; vacancies are filled by noncommissioned officers of the platoon, or by the nearest available officers or noncommissioned officers arriving with reenforcing troops.

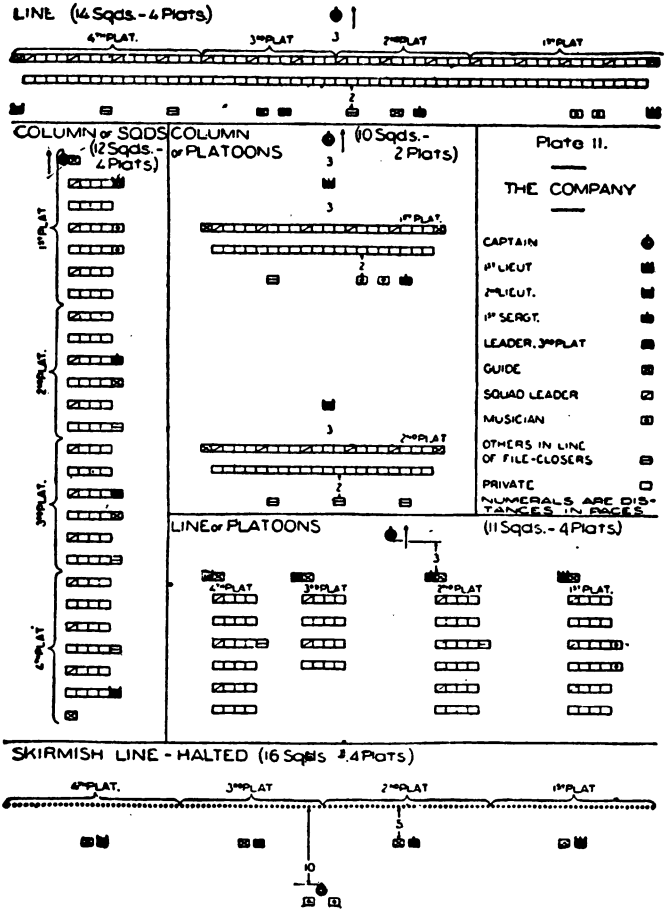

LINE (14 Sqds.-4 Plats)
4th PLAT.
3rd PLAT
2nd PLAT
1st PLAT
3
2
COLUMN or SQDS (12 Sqds.-4 Plats)
1st PLAT.
2nd PLAT.
3rd PLAT.
4th PLAT.
COLUMN or PLATOONS (10 Sqds.-2 Plats)
3
3
1st PLAT.
2
3
2nd PLAT
2
Plate II.
THE COMPANY
CAPTAIN
1st LIEUT
2nd LIEUT.
1st SERGT.
LEADER, 3rd PLAT
GUIDE
SQUAD LEADER
MUSICIAN
OTHERS IN LINE OF FILE-CLOSERS
PRIVATE
NUMERALS ARE DISTANCES IN PACES
LINE or PLATOONS (11 Sqds.-4 Plats)
3
4th PLAT
3rd PLAT
2nd PLAT
1st PLAT.
SKIRMISH LINE - HALTED (16 Sqds.-4 Plats)
4th PLAT.
3rd PLAT
2nd PLAT
1st PLAT
5
10

Fig. 19

161. **Post of first sergeant, quartermaster sergeant and musicians.** The first sergeant is never assigned as a guide. When not commanding a platoon, he is posted as a file closer opposite the third file from the outer flank of the first platoon; and when the company is deployed he accompanies the captain.

The quartermaster sergeant, when present, is assigned according to his rank as a sergeant.

Enlisted men below the grade of sergeant, armed with the rifle are in ranks unless serving as guides; when not so armed they are posted in the line of file closers.

Musicians, when required to play, are at the head of the column. When the company is deployed, they accompany the captain. (Par. 232.)

162. **Certain movements executed by company and by platoon as prescribed in Schools of the Soldier and the Squad.** The company executes the **halt, rests, facings, steps** and **marchings, manual of arms, loadings** and **firings, takes intervals** and **distances** and **assembles, increases** and **diminishes intervals,** resumes **attention, obliques,** resumes the direct march, preserves alignments, **kneels, lies down, rises, stacks** and **takes arms,** as explained in the Schools of the Soldier and the Squad, substituting in the commands **company** for **squad.**

The same rule applies to platoons, detachments, details, etc., substituting their designation for **squad** in the commands. In the same manner these execute the movements prescribed for the company, whenever possible, substituting their designation for **company** in the commands.

163. **Depleted company led as platoon.** A company so depleted as to make division into platoons impracticable is led by the captain as a single platoon, but retains the designation of company. The lieutenants and first sergeant assist in fire control; the other sergeants place themselves in the firing line as skirmishers.

LESSON 4

CLOSE ORDER

RULES

164. **Platoon guides.** The guides of the right and left, or leading and rear, platoons, are the right and left, or leading and rear, guides, respectively, of the company when it is in line or in column of squads. Other guides are in the line of file closers.

In platoon movements the post of the platoon guide is at the head of the platoon, if the platoon is in column, and on the guiding flank if in line. When a platoon has two guides their original assignment to flanks of the platoon does not change.

165. **Guides of a column of squads; changing guides and file closers to opposite flank.** The guides of a column of squads place themselves on the flank opposite the file closers. To change the guides and file closers to the other flank, the captain commands: 1. **File closers on left (right) flank**; 2. **MARCH.** The file closers dart through the column; the captain and guides change.

In the column of squads, each rank preserves the alignment toward the side of the guide.

166. **File closers do not execute loadings or firings; execution of manual of arms and other movements.** Men in the line of file closers do not execute the loadings or firings.

Guides and enlisted men in the line of file closers execute the manual of arms during the drill unless specially excused, when they remain at the order. During ceremonies they execute all movements.

167. **Action of guides in taking intervals and distances.** In taking intervals and distances, unless otherwise directed, the right and left guides, at the first command, place themselves in the line of file closers, and with them, take a distance of 4 paces from the rear rank. In taking intervals, at the command **march,** the file closers face to the flank and each steps off with the file nearest him. In **assembling** the guides and file closers resume their positions in line.

168. **Repetition of commands by platoon leaders in platoon drill.** In movements executed simultaneously by platoons (as **platoons right** or **platoons, column right**), platoon leaders repeat the preparatory command (**platoon right,** etc.), applicable to their respective platoons. The command of execution is given by the captain only.

TO FORM THE COMPANY

169. At the sounding of the assembly the first sergeant takes position 6 paces in front of where the center of the company is to be, faces it, draws saber, and commands: **FALL IN.**

The right guide of the company places himself, facing to the front, where the right of the company is to rest, and at such point that the center of the company will be 6 paces from and opposite the first sergeant; the squads form in their proper places on the left of the right guide, superintended by the other sergeants, who then take their posts. (Pars. 160-161.)

The first sergeant commands: **REPORT.** Remaining in position at the order, the squad leaders, in succession from the right, salute and report: **All present**; or **Private (s)** —— ———— **absent.** The first sergeant does not return the salutes of the squad leaders; he then commands: 1. **Inspection**; 2. **ARMS**; 3. **Order**; 4. **ARMS**, faces about, salutes the captain, reports: **Sir, all present or accounted for,** or the names of the unauthorized absentees, and, without command, takes his post.

If the company can not be formed by squads, the first sergeant commands: 1. **Inspection**; 2. **ARMS**; 3. **Right shoulder**; 4. **ARMS,** and calls the roll. Each man as his name is called, answers **here** and executes order arms. The sergeant then effects the division into squads and reports the company as prescribed above.

The captain places himself 12 paces in front of the center of, and facing, the company in time to receive the report of the first sergeant, whose salute he returns, and then draws saber.

The lieutenants take their posts when the first sergeant has reported and draw saber with the captain. The company, if not under arms, is formed in like manner, omitting reference to arms.

170. For the instruction of platoon leaders and guides, the company, when small, may be formed in single rank. In this formation close order movements only are executed. The single rank executes all movements as explained for the front rank of a company.

TO DISMISS THE COMPANY

171. Being in line at a halt, the captain directs the first sergeant: **Dismiss the company.** The officers fall out; the first sergeant places himself faced to the front, 3 paces to the front and 2 paces from the nearest flank of the company, salutes, faces toward the opposite flank of the company and commands: 1. **Inspection**; 2. **ARMS**; 3. **Port**; 4. **ARMS**; 5. **DISMISSED.**

ALIGNMENTS

172. The alignments are executed as prescribed in the School of the squad (pars. 104-105), the guide being established instead of the flank file. The rear-rank man of the flank file keeps his head and eyes to the front and covers his file leader.

At each alignment the captain places himself in prolongation of the line, 2 paces from and facing the flank toward which the dress is made, verifies the alignment, and commands: **FRONT.**

Platoon leaders take a like position when required to verify alignments.

MOVEMENTS ON THE FIXED PIVOT

173. Being in line, to turn the company: 1. **Company right (left)**; 2. **MARCH**; 3. **Company**; 4. **Halt**; or, 3. **Forward**; 4. **MARCH.**

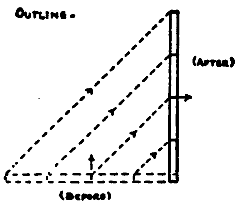


Fig. 20
page 48.)

At the second command the right flank man* in the front rank faces to the right in marching (par. 53); the other front-rank men oblique to the right, place themselves abreast of the pivot, and mark time; in the rear rank the third man from the right, followed in column by the second and first, moves straight to the front until in rear of his front-rank man, when all face to the right in marching and mark time; the remaining men of the rear rank move straight to the front 4 paces, oblique to the right, place themselves abreast of the third man, cover their file leaders, and mark time, the right guide steps back, takes post on the flank, and marks time.

The fourth command is given when the last man is one pace in rear of the new line.

The command **halt** may be given at any time after the movement begins; only those halt who are in the new position. Each of the others halts upon arriving on the line, aligns himself to the right (pars. 21, 52), and executes **front** without command.

From Line to Column of Platoons

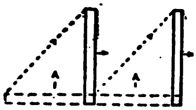
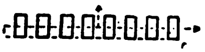


Fig. 21

174. Being in line, to form column of platoons, or the reverse: 1. **Platoons right (left)**, 2. **MARCH**, 3. **Company**, 4. **HALT**; or 3. **Forward**, 4. **MARCH.**

Executed by each platoon as described for the company. (Par. 173.)

Before forming line the captain sees that the guides on the flank toward which the movement is to be executed are covering. This is effected by previously announcing the guide to that flank. (Par. 16.)



From Line to Column of Squads.

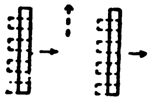


Fig. 22

From Line of Platoons to Column of Platoons.

175. Being in line, to form column of squads, or the reverse; or, being in line of platoons, to form column of platoons, or the reverse: 1. **Squads right (left)**, 2. **MARCH**; or 1. **Squads right (left)**, 2. **MARCH**, 3. **Company**, 4. **HALT.**

Executed by each squad as described in the School of the Squad. (Pars. 116-117.)

If the company or platoons be formed in line toward the side of the file closers, they dart through the column and take posts in rear of the company at the second command. If the column of squads be formed from line, the file closers take posts on the pivot flank, abreast of and 4 inches from the nearest rank. (Par. 22.)

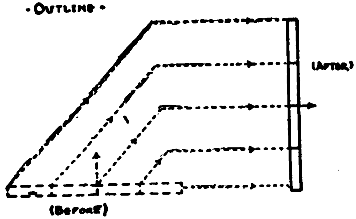


Fig. 23

MOVEMENTS ON THE MOVING PIVOT

176. Being in line, to change direction: 1. **Right (Left) turn**, 2. **MARCH**, 3. **Forward**, 4. **MARCH.**

Executed as described in the

---

*No. 1 of the first squad.—Author.

School of the Squad (par. 115), except that the men do not glance toward the marching flank and that all take the full step at the fourth command. The right guide is the pivot of the front flank. Each rear-rank man obliques on the same ground as his file leader.

177. Being in column of platoons, to change direction: 1. **Column right (left)**, 2. **MARCH.**

At the first command the leader of the leading platoon commands: **Right turn.** At the command **march** the leading platoon turns to the right on moving pivot (par. 176); its leader commands: 1. **Forward,** 2. **MARCH,** on completion of the turn. Rear platoons march squarely up to the turning point of the leading platoon and turn at command of their leaders.

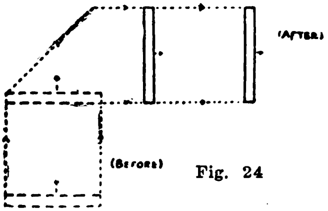


Fig. 24

178. Being in column of squads, to change direction: 1. **Column right (left)**, 2. **MARCH.**

At the second command the front rank of the leading squad turns to the right on moving pivot as in the School of the Squad (par. 115); the other ranks, without command, turn successively on the same ground and in a similar manner.

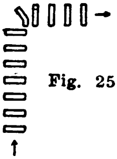


Fig. 25

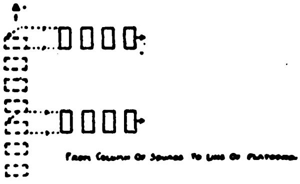
179. Being in column of squads, to form line of platoons or the reverse: 1. **Platoons, column right (left)**, 2. **MARCH.**

Executed by each platoon as described for the company. (Par. 178.)

180. Being in line, to form column of squads and change direction: 1. **Squads right (left), column right (left)**, 2 **MARCH**; or, 1. **Right (left) by squads**, 2. **MARCH.**

In the first case the right squad initiates the **column right** as soon as it **has** completed the **squad right.**

In the second case, at the command **march,** the right squad marches **forward;** the remainder of the company executes **squads right, column left,** and follows the right squad. The right guide, when he has posted himself in front of the right squad, takes four short steps, then resumes the full steps; the right squad conforms.



From Column of Squads to Line of Platoons.

Fig. 26

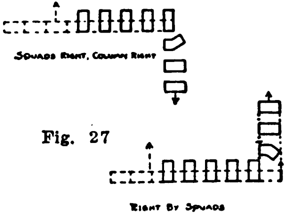
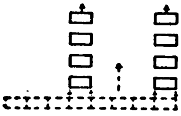


Fig. 27

181. Being in line, to form line of platoons: 1. **Squads right (left), platoons, column right (left)**, 2. **MARCH;** or 1. **Platoons, right (left) by squads**, 2. **MARCH.**

Executed by each platoon as described for the company in the preceding paragraph.



From Line to Line of Platoons.

Fig. 28

FACING OR MARCHING TO THE REAR

182. Being in line, line of platoons, or in column of platoons or squads, to face or march to the rear: 1. **Squads right (left) about,** 2. **MARCH;** or 1. **Squads right (left) about,** 2. **MARCH;** 3. **Company,** 4. **HALT.**

Executed by each squad as described in the School of the Squad. (Par. 118.)

If the company or platoons be in column of squads, the file closers turn about toward the column, and take their posts; if in line, each darts through the nearest interval between squads.

183. To march to the rear for a few paces: 1. **About,** 2. **FACE,** 3. **Forward,** 4. **MARCH.**

If in line, the guides place themselves in the rear rank, now the front rank; the file closers, on facing about, maintain their relative positions. No other movement is executed until the line is faced to the original front.

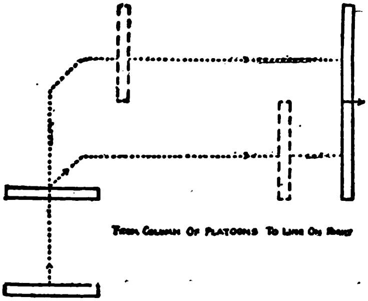
ON RIGHT (LEFT) INTO LINE

184. Being in column of platoons or squads, to form line on right or left: 1. **On right (left) into line,** 2. **MARCH,** 3. **Company,** 4. **HALT,** 5. **Front.**

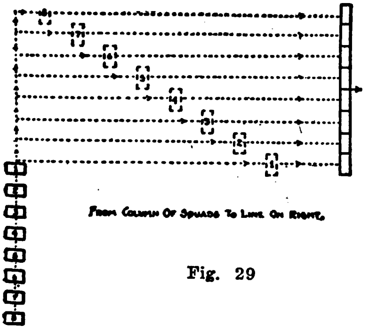
At the first command the leader of the leading unit commands: **Right turn.** The leaders of the other units command: **Forward,** if at a halt. At the second command the leading unit turns to the right on moving pivot (par. 176). The command **halt** is given when the leading unit has advanced the desired distance in the new direction; it halts; its leader then commands: **Right dress.** (Par. 104.)

The units in rear continue to march straight to the front; each, when opposite the right of its place in line, executes **right turn** at the command of its leader; each is halted on the line at the command of its leader, who then commands: **Right dress.** All dress on the first unit in line.

If executed in double time, the leading squad marches in double time until halted.



From Column Of Platoons To Line On Right



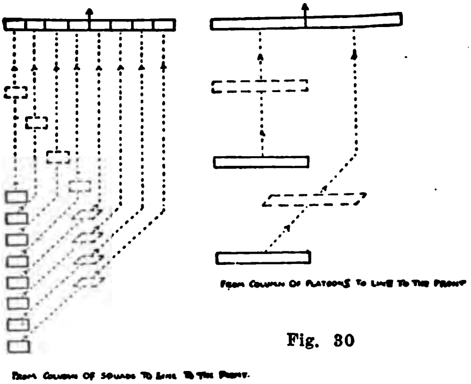
From Column Of Squads To Line On Right.

Fig. 29

Front into Line

185. Being in column of platoons or squads, to form line to the front: 1. **Right (left) front into line,** 2. **MARCH,** 3. **Company,** 4. **HALT,** 5. **FRONT.**

At the first command the leaders of the units in rear of the leading one command: **Right oblique.** If at a halt, the leader of the leading unit commands: **Forward.** At the second command the leading unit moves straight forward; the rear units oblique as indicated. The command **halt** is given when the leading unit has advanced the desired distance; it halts; its leader then commands: **Left dress.** Each of the rear units, when opposite its place in line, resumes the original direction at the command of its leader; each is halted on the line at the command of its leader, who then commands: **Left dress.** All dress on the first unit in line.


From Column Of Platoons To Line To The Front

From Column Of Squads To Line To The Front.

Fig. 30

186. Being in column of squads to form column of platoons, or being in line of platoons, to form the company in line: 1. **Platoons, right (left) front into line,** 2. **MARCH,** 3. **Company,** 4. **HALT,** 5. **FRONT.**

Executed by each platoon as described for the company. (Par. 185.) In forming the company in line, the dress is on the left squad of the left platoon. If forming column of platoons, platoon leaders verify the alignment before taking their posts; the captain commands **front** when the alignments have been verified.

When **front into line** is executed in double time the commands for halting and aligning are omitted, and the guide is toward the side of the first unit in line. (Par. 12.)

AT EASE AND ROUTE STEP

187. The column of squads is the habitual column of route, but **route step** and **at ease** are applicable to any marching formation.

188. To march at route step: 1. **Route step,** 2. **MARCH.**

Sabers are carried at will or in the scabbard; the men carry their pieces at will, keeping the muzzles elevated; they are not required to preserve silence, nor to keep the step. The ranks cover and preserve their distance. If halted from route step, the men stand at rest. (Par. 49.)

189. **To march at ease:** 1. **At ease,** 2. **MARCH.**

The company marches as in route step, except that silence is preserved; when halted, the men remain **at ease.** (Par. 49.)

•190. **Marching at route step or at ease:** 1. **Company,** 2. **ATTENTION.**

At the command **attention** the pieces are brought to the right shoulder and the cadenced step in quick time is resumed.

TO DIMINISH THE FRONT OF A COLUMN OF SQUADS

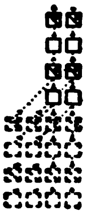


Fig. 31

191. Being in column of squads: 1. **Right (left) by twos,** 2. **MARCH.**

At the command **march** all files except the two right files of the leading squad execute **in place halt** (par. 14); the two left files of the leading squad oblique to the right when disengaged and follow the right files at the shortest practicable distance. The remaining squads follow successively in like manner.

192. Being in column of squads or twos: 1. **Right (left) by file,** 2. **MARCH.**

At the command **march,** all files execute **in place halt** (par. 14) except the right file of the leading two or squad. The left file or files of the leading two or squad oblique successively to the right when disengaged and each follows the file on its right at the shortest practicable distance. The remaining twos or squads follow successively in like manner.

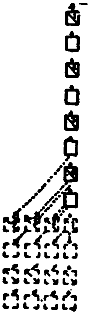


Fig. 32

193. Being in column of files or twos, to form column of squads; or, being in column of files, to form column of twos. 1. **Squads (Twos), right (left) front into line,** 2. **MARCH.**

At the command **march,** the leading file or files halt. The remainder of the squad, or two, obliques to the right and halts on line with the leading file or files. The remaining squads or twos close up and successively form in rear of the first in like manner.

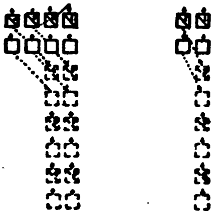


Fig. 33

The movement described in this paragraph will be ordered **right** or **left,** so as to restore the files to their normal relative position in the two or squad.

194. The movements prescribed in the three preceding paragraphs are difficult of execution at attention and have no value as disciplinary exercises.

195. Marching by twos or files cannot be executed without serious delay and waste of road space. Every reasonable precaution will be taken to obviate the necessity of these formations.

LESSON 5

EXTENDED ORDER

RULES FOR DEPLOYMENT

196. **Designation of base guards.** The command **guide right (left or center)** indicates the base squad for the deployment; if in line it designates the actual **right (left or center)** squad; if in column the command **guide right (left)** designates the **leading** squad, and the command **guide center** designates the **center squad.** (Par. 159.) After the deployment is completed, the guide is **center** without command, unless otherwise ordered.

197. **Action of squad leader at preparatory command for forming skirmish line.** At the preparatory command for forming skirmish line, from either column of squads or line, each squad leader (except the leader of the base squad, when his squad does not advance), cautions his squad **follow me** or **by the right (left) flank,** as the case may be; at the command **march,** he steps in front of his squad and leads it to its place in line. (Par. 120.)

198. **Point on which base squad marches.** Having given the command for forming skirmish line, the captain, if necessary, indicates to the corporal of the base squad the point on which the squad is to march; the corporal habitually looks to the captain for such directions.

199. **Deployment of the squads.** The base squad (par. 196) is deployed as soon as it has sufficient interval. The other squads are deployed as they arrive on the general line; each corporal halts in his place in line and commands or signals, as **skirmishers** (par. 121); the squad deploys and halts abreast of him.

If tactical considerations demand it, the squad is deployed before arriving on the line.

200. **Alignment of deployed lines; deployed line faces to front on halting.** Deployed lines preserve a general alignment toward the guide. (Par. 16.) Within their respective fronts, individuals or units march so as best to secure cover or to facilitate the advance, but the general and orderly progress of the whole is paramount.

On halting, a deployed line faces to the front (direction of the enemy) in all cases and takes advantage of cover, the men lying down if necessary.

201. **Certain movements in extended order executed by same commands as in close order.** The company in skirmish line **advances, halts,** moves **by the flank,** or **to the rear, obliques,** resumes **the direct march,** passes from **quick** to **double time** and the reverse by the same commands and in a similar manner as in close order; if at a halt, the movement **by the flank** or **to the rear** is executed by the same commands as when marching. **Company right (left, half right, half left)** is executed as

explained for the front rank (par. 116), skirmish intervals being maintained. (Sec. 4, par. 121.)

202. **Deployment of platoons and detachments.** A platoon or other part of the company is deployed and marched in the same manner as the company, substituting in the commands, **platoon (detachments,** etc.), **for company.**

DEPLOYMENTS (Pars. 120-123)

203. Being in line, to form skirmish line to the front: 1. **As skirmishers, guide right (left or center)** (par. 196), 2. **MARCH.**

If marching, the corporal of the base squad moves straight to the front; when that squad has advanced the desired distance, the captain commands: 1. **Company,** 2. **HALT.** If the guide be **right (left),** the other corporals move to the **left (right)** front, and, in succession from the base, place their squads on the line; if the guide be center, the other corporals move to the **right** or **left** front, according as they are on the right or left of the center squad (par. 159), and in succession from the central squad place their squads on the line.

If at a halt, the base squad is deployed without advancing; the other squads may be conducted to their proper places by the flank; interior squads may be moved when squads more distant from the base have gained comfortable marching distance.

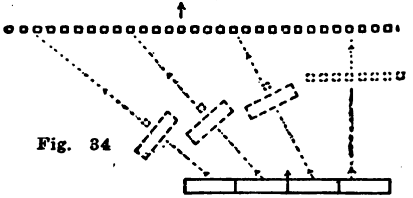


Fig. 34

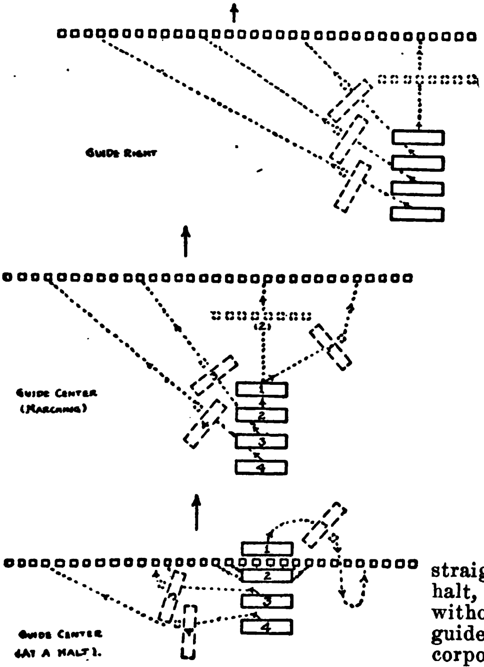


Fig. 35

204. Being in column of squads, to form skirmish line to the front: 1. **As skirmishers, guide right (left or center)** (par. 196), 2. **MARCH.**

If marching, the corporal of the base squad deploys it and moves straight to the front; if at a halt, he deploys his squad without advancing. If the guide be **right (left),** the other corporals move to the **left (right)** front, and, in succession form the base, place their squads on the line; if the guide be **center** the corporals in front of the center squad (par. 159) move to the right (if at a halt, to the right rear), the corporals in rear of the center squad move to the left front, and each, in succession from the base, places his squad on the line.

The column of twos or files is deployed by the same commands and in like manner.

205. **Deployment in an oblique direction.** The company in line or in column of squads may be deployed in an oblique direction by the same commands. The captain points out the desired direction; the corporal of the base squad moves in the direction indicated; the other corporals conform.

206. **Deployment to flank or rear.** To form skirmish line to the flank or rear the line or the column of squads is turned by squads to the flank or rear and then deployed as described.

207. **Increasing or decreasing intervals.** The intervals between men are increased or decreased as described in the School of the Squad (par. 123), adding to the preparatory command, **guide right (left or center)** if necessary. (Par. 196.)

THE ASSEMBLY

208. The captain takes his post in front of, or designates, the element on which the company is to assemble and commands: 1. **Assemble,** 2. **MARCH.**

If in skirmish line the men move promptly toward the designated point and the company is re-formed in line. If assembled by **platoons,** these are conducted to the designated point by platoon leaders, and the company is re-formed in line.

Platoons may be assembled by the command: 1. **Platoons, assemble,** 2. **MARCH.**

Executed by each platoon as described for the company.

One or more platoons may be assembled by the command: 1. **Such platoon (s), assemble,** 2. **MARCH.**

Executed by the designated platoon or platoons as described for the company.

THE ADVANCE

209. **Methods of advancing.** The advance of a company into an engagement (whether for attack or defense) is conducted in close order, preferably column of squads, until the probability of encountering hostile fire makes it inadvisable to deploy. After deployment, and before opening fire, the advance of the company may be continued in skirmish line or other suitable formation, depending upon circumstances. The advance may often be facilitated, or better advantage taken of cover, or losses reduced by the employment of the **platoon** or **squad columns** (pars. 210-211) or by the use of a **succession of thin lines** (par. 215). The selection of the method to be used is made by the captain or major, the choice depending upon conditions arising during the progress of the advance. If the deployment is found to be premature, it will generally be best to assemble the company and proceed in close order.

Patrols are used to provide the necessary security against surprise.

210. Being in skirmish line: 1. **Platoon columns,** 2. **MARCH.**

The platoon leaders move forward through the center of their respective platoons; men to the right of the platoon leader march to the left and follow him in file; those to the left march in like manner to the right; each platoon leader thus conducts the march of his platoon in double column of files; platoon guides follow in rear of their respective platoons to insure prompt and orderly execution of the advance.

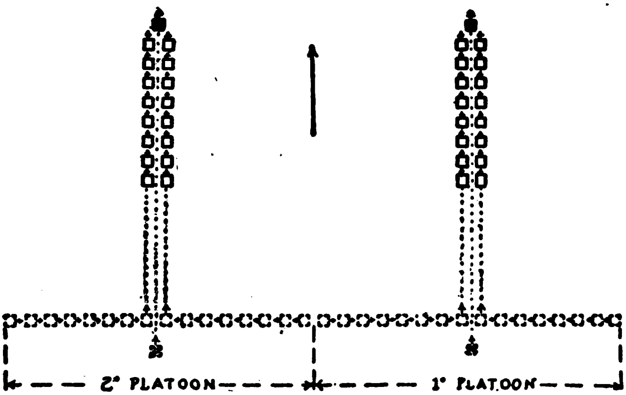


Fig. 86

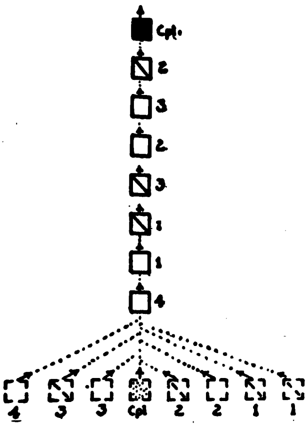


Fig. 87

211. Being in skirmish line: 1. **Squad columns**, 2. **MARCH.**

Each squad leader moves to the front; the members of each squad oblique toward and follow their squad leader in single file at easy marching distances.

212. Use and purpose of platoon and squad columns. Platoon columns are profitably used where the ground is so difficult or cover so limited as to make it desirable to take advantage of the few favorable routes; no two platoons should march within the area of burst of a single shrapnel.* **Squad columns** are of value principally in facilitating the advance over rough or brush-grown ground; they afford no material advantage in securing cover.

213. To deploy platoon or squad columns: 1. **As skirmishers**, 2. **MARCH.**

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*Ordinarily about 2 yards wide.

Skirmishers move to the right or left front and successively place themselves in their original positions on the line. (Par. 121.)

214. Being in platoon or squad columns: 1. **Assemble,** 2. **MARCH.**

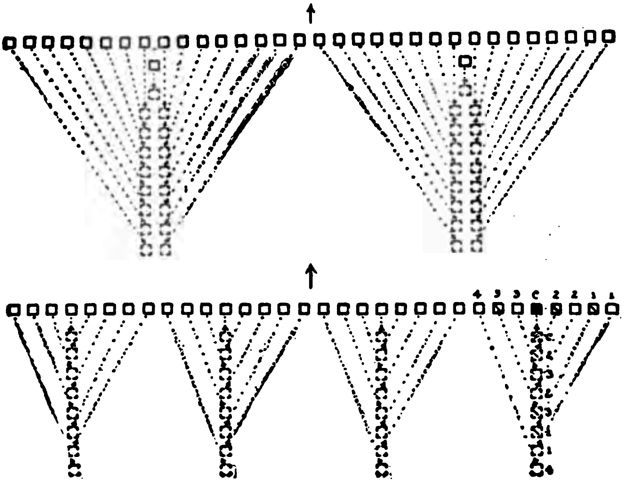
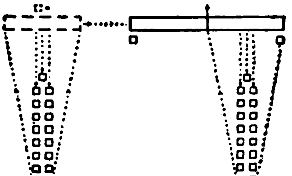
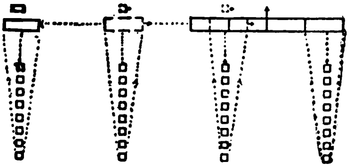


Fig. 38



Assembly Made On Right Platoon



Assembly Made On Right Squad.

Fig. 39

The platoon or squad leaders signal **assemble** (Sec. 13, par. 43). The men of each platoon or squad, as the case may be, advance and, moving to the right and left, take their proper places in line, each unit assembling on the leading element of the column and re-forming in line. The platoon or squad leaders conduct their units toward the element or point indicated by the captain, and to their places in line; the company is re-formed in line.

215. Being in skirmish line, to advance by a succession of thin lines: 1. **(Such numbers) forward,** 2. **MARCH.**

The captain points out in advance the selected position in front of the line occupied. The designated number of each squad moves to the front; the line thus formed preserves the original intervals as nearly as practicable; when this line has advanced a suitable distance (generally from 100 to 250 yards, depending upon the terrain and the character of the hostile fire), a second is sent forward by similar commands, and so on at irregular distances until the whole line has advanced. Upon arriving at the indicated position, the first line is halted. Successive lines, upon arriving, halt on line with the first and the men take their proper places in the skirmish line.

Ordinarily each line is made up of one man per squad and the men of a squad are sent forward in order from right to left as deployed. The first line is led by the platoon leader of the right platoon, the second by the guide of the right platoon, and so on in order from right to left. (Par. 160.)

The advance is conducted in quick time unless conditions demand a faster gait.

The company having arrived at the indicated position, a further advance by the same means may be advisable.

216. **Use and purpose of advance in succession of thin lines.** The advance in a succession of thin lines is used to cross a wide stretch swept, or likely to be swept, by artillery fire or heavy, long-range rifle fire which cannot profitably be returned. Its purpose is the building up of a strong skirmish line preparatory to engaging in a fire fight. This method of advancing results in serious (though temporary) loss of control over the company. Its advantage lies in the fact that it offers a less definite target, hence is less likely to draw fire.

217. **Improvised formations.** The above are suggestions. Other and better formations may be devised to fit particular cases. The best formation is the one which advances the line farthest with the least loss of men, time, and control.

COMBAT

THE FIRE ATTACK

218. **Advance of firing line; advance by rushes.** The principles governing the advance of the firing line in attack are considered in the School of the Battalion.

When it becomes impracticable for the company to advance as a whole by ordinary means, it advances by rushes.

219. **Advancing by rushes.** Being in skirmish line: 1. **By platoon (two platoons, squads, four men, etc.), from the right (left),** 2. **RUSH.**

The platoon leader on the indicated flank carefully arranges the details for a prompt and vigorous execution of the rush and puts it into effect as soon as practicable. If necessary, he designates the leader for the indicated fraction. When about to rush, he causes the men of the fraction to cease firing and to hold themselves flat, but in readiness to spring forward instantly. The leader of the rush (at the signal of the platoon leader, if the latter be not the leader of the rush) commands: **Follow me,** and running at top speed, leads the fraction to the new line, where he halts it and causes it to open fire. The leader of the rush selects the new line if it has not been previously designated.

The first fraction having established itself on the new line, the next like fraction is sent forward by its platoon leader, without further command of the captain, and so on successively, until the entire company is on the line established by the first rush.

If more than one platoon is to join in one rush, the junior platoon leader conforms to the action of the senior.

A part of the line having advanced, the captain may increase or decrease the size of the fractions to complete the movement.

220. **Rush of company as whole led by captain.** When the company forms a part of the firing line, the rush of the company as a whole is conducted by the captain, as described for a platoon in the preceding paragraph. The captain leads the rush; platoon leaders lead their respective platoons; platoon guides follow the line to insure prompt and orderly execution of the advance.

221. **Advance by crawling or otherwise.** When the foregoing method of rushing, by running, becomes impracticable, any method of advance that **brings the attack closer to the enemy**, such as crawling, should be employed.

(All rushes should be made with life and ginger, and all the men should start together. All rushes should be made under covering fire, and when a unit rushes forward the adjoining unit or units make up for the loss of fire thus caused by increasing the rate of their fire.

A unit commander, about to rush forward, will not do so until he sees that the adjoining unit or units have started to give him the protection of their covering fire and, if necessary, he will call to them to do so. Each unit must be careful not to advance until the last unit that rushed forward has had time to take up an effective fire. When sights have to be adjusted at the conclusion of a rush, the men should do so in the prone position even though it be necessary for the men to kneel for firing. The same as the men who rush should start simultaneously from the prone position, so should they stop simultaneously, all men dropping down to the ground together, wherever they may be, at the command "Down," given by the unit commander when the leading men have reached the new position. The slower members who drop down in rear will crawl up to the line after the halt. So that the slower members may not be crowded out of the line, and also to prevent bunching, the faster men should leave room for them on the line.—Author.)

The Company in Support (Being part of a battalion)

222. **Formations adopted by support.** To enable it to follow or reach the firing line, the support adopts suitable formations, following the principles explained in paragraphs 209-215.

The support should be kept assembled as long as practicable. If after deploying a favorable opportunity arises to hold it for some time in close formation, it should be reassembled. It is redeployed when necessary.

223. **Support controlled by major; size of re-enforcement; captain on look out for major's signals.** The movements of the support as a whole and the dispatch of re-enforcements from it to the firing line are controlled by the major.

A re-enforcement of less than one platoon has little influence and will be avoided whenever practicable.

The captain of a company in support is constantly on the alert for the major's signals or commands.

224. **Re-enforcement to join firing line deployed as skirmishers and occupy existing intervals.** A re-enforcement sent to the firing line joins it deployed as skirmishers. The leader of the re-enforcement places it in an interval in the line, if one exists, and commands it thereafter as a unit. If no such suitable interval exists, the re-enforcement is advanced with increased intervals between skirmishers; each man occupies

the nearest interval in the firing line, and each then obeys the orders of the nearest squad leader and platoon leader.

225. **Promptness in re-enforcing firing line.** A re-enforcement joins the firing line as quickly as possible without exhausting the men.

226. **Original platoon divisions to be maintained; duties of officers and sergeants upon joining firing line.** The original platoon division of the companies in the firing line should be maintained and should not be broken up by the mingling of re-enforcements.

Upon joining the firing line, officers and sergeants accompanying a re-enforcement take over the duties of others of like grade who have been disabled, or distribute themselves so as best to exercise their normal functions. Conditions will vary and no rules can be prescribed. It is essential that all assist in mastering the increasing difficulties of control.

THE COMPANY ACTING ALONE

227. **Employed according to principles of battalion acting alone.** In general, the company, when acting alone, is employed according to the principles applicable to the battalion acting alone; the captain employs platoons as the major employs companies, making due allowance for the difference in strength.

The support may be smaller in proportion or may be dispensed with.

228. **Protection against surprise.** The company must be well protected against surprise. Combat patrols on the flanks are especially important. Each leader of a flank platoon details a man to watch for the signals of the patrol or patrols on his flank.

FIRE

229. **Issuing of ammunition and loading of pieces before deployment; firings in close order.** Ordinarily pieces are loaded and extra ammunition is issued before the company deploys for combat.

In close order the company executes the firing orders (pars. 130-148) at the command of the captain, who posts himself in rear of the center of the company.

Usually the firings in close order consists of saluting volleys only. (Par. 141.)

230. **Firing controlled by platoon leaders.** When the company is deployed, the men execute the firings at the command of their platoon leaders; the latter give such commands as are necessary to carry out the captain's directions, and, from time to time, add such further commands as are necessary to continue, correct, and control, the fire ordered.

231. **Use of signals during firing.** The voice is generally inadequate for giving commands during fire and must be replaced by signals (par. 43) of such character that proper fire direction (pars. 245-246) and control (pars. 247-250) are assured. To attract attention, signals must usually be preceded by the whistle signal (short blast). A fraction of the firing line about to rush should, if practicable, avoid using the long blast signal as an aid to cease firing. (Par. 42.) Officers and men behind the firing line cannot ordinarily move freely along the line, but must depend on mutual watchfulness and the proper use of the prescribed signals. All should post themselves so as to see their immediate superiors and subordinates.

232. **Duties of musicians.** The musicians assist the captain by observing the enemy, the target, and the fire-effect, by transmitting commands or signals, and by watching for signals. (Fourth section, par. 161.)

233. **Blank Cartridge.** Firing with blank cartridges at an outlined or represented enemy (par. 7) at distances less than 100 yards is prohibited.

234. **Effect of fire and influence of ground.** The effect of fire and the influence of the ground in relation thereto, and the individual and collective instructions in marksmanship, are treated in the Small-Arms Firing Manual.

Ranges

235. **Classification.** For convenience of reference, ranges are classified as follows:

0 to 600 yards, close range.
600 to 1,200 yards, effective range.
1,200 to 2,000 yards, long range.
2,000 yards and over, distant range.

236. **Determination of distance to target.** The distance to the target must be determined as accurately as possible and the sights set accordingly. Aside from training and morale, this is the most important single factor in securing effective fire at the longer ranges.

237. **Method of determining the range; estimators.** Except in a deliberately prepared defensive position, the most accurate and only practicable method of determining the range will generally be to take the mean of several estimates.

Five or six officers or men, selected from the most accurate estimators in the company, are designated as **range estimators** and are specially trained in estimating distances.

Whenever necessary and practicable, the captain assembles the range estimators, points out the target to them, and adopts the mean of their estimates. The range estimators then take their customary posts.

Classes of Firing

238. **Volley firing** (par. 141) has limited application. In defense it may be used in the early stages of the action if the enemy presents a large compact target. It may be used by troops executing **fire of position.** When the ground near the target is such that the strike of bullets can be seen from the firing line, **ranging volleys** may be used to correct the sight setting.

In combat, volley firing is executed habitually by platoon.

239. **Fire at will** (par. 143) is the class of fire normally employed in attack or defense.

240. **Clip fire** (par. 145) has limited application. It is principally used: 1. In the early stages of combat, to steady the men by habituating them to brief pauses in firing. 2. To produce a short burst of fire.

The Target

241. **Assignment of target by major; change of target to be avoided; hostile firing line usual target.** Ordinarily the major will assign to the company an objective in attack or sector in defense; the company's

target will lie within the limits so assigned. In the choice of target, tactical considerations are paramount; the nearest hostile troops within the objective or sector will thus be the usual target. This will ordinarily be the hostile firing line; troops in rear are ordinarily proper targets for artillery, machine guns, or, at times, infantry employing fire of position.

Change of target should not be made without excellent reasons therefor, such as the sudden appearance of hostile troops under conditions which make them more to be feared than the troops comprising the former target.

242. **Distribution of fire; allotment of target to platoon leaders.** The distribution of fire over the entire target is of special importance.

The captain allots a part of the target to each platoon, or each platoon leader takes as his target that part which corresponds to his position in the company. Men are so instructed that each fires on that part of the target which is directly opposite him.

243. **All parts of target equally important.** All parts of the target are equally important. Care must be exercised that the men do not slight its less visible parts. A section of the target not covered by fire represents a number of the enemy permitted to fire coolly and effectively.

244. **Use of aiming points in case of invisible targets.** If the target can not be seen with the naked eye, platoon leaders select an object in front of or behind it, designate this as the aiming target, and direct a sight setting which will carry the cone of fire into the target.

Fire Direction*

245. **Impracticability in combat of commanding company directly.** When the company is large enough to be divided into platoons, it is impracticable for the captain to command it directly in combat. His efficiency in managing the firing line is measured by his ability to enforce his will through the platoon leaders. Having indicated clearly what he desires them to do, he avoids interfering except to correct serious errors or omissions.

246. **Captain directs the fire.** The captain directs the fire of the company or of designated platoons. He designates the target, and, when practicable, allots a part of the target to each platoon. Before beginning the fire action he determines the range of (par. 237), announces the sight setting (par. 140), and indicates the class of fire to be employed (par. 238) and the time to open fire. Thereafter, he observes the fire effect, corrects material errors in sight setting, prevents exhaustion of the ammunition supply, and causes the distribution of such extra ammunition as may be received from the rear.

Fire Control

247. **Platoon the fire unit.** In combat, the platoon is the fire unit. From 20 to 35 rifles are as many as one leader can control effectively.

248. **Special duties of platoon leaders.** Each platoon leader puts into execution the commands or directions of the captain, having first taken such precautions to insure correct sight setting and clear description of

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*By Fire Direction is meant prescribing and generally directing the firing.—Author.

the target or aiming target as the situation permits or requires; thereafter, he gives such additional commands or directions as are necessary to exact compliance with the captain's will. He corrects the sight setting when necessary. He designates an aiming target when the target can not be seen with the naked eye.

249. **General duties of platoon leaders; duties of platoon guides and squad leaders.** In general, **platoon leaders** observe the target and the effect of their fire and are on the alert for the captain's commands or signals; they observe and regulate the rate of fire. (Par. 144.) The **platoon guides** watch the firing line and check every breech of fire discipline. (Pars. 251-254.) **Squad leaders** transmit commands and signals when necessary, observe the conduct of their squads and abate excitement, assist in enforcing fire discipline and participate in the firing.

250. **Importance of fire control.** The best troops are those that submit longest to fire control. Loss of control is an evil which robs success of its greatest results. To avoid or delay such loss should be the constant aim of all.

Fire control implies the ability to stop firing, change the sight setting and target, and resume a well directed fire.

Fire Discipline

251. **What fire discipline implies.** "Fire discipline implies, besides a habit of obedience, a control of the rifle by the soldier, the result of training, which will enable him in action to make hits instead of misses. It embraces taking advantage of the ground; care in setting the sight and delivery of fire; constant attention to the orders of the leaders, and careful observation of the enemy; an increase of fire when the target is favorable, and a cessation of fire when the enemy disappears; economy of ammunition." (Small-Arms Firing Manual.)

In combat, shots which graze the enemy's trench or position and thus reduce the effectiveness of his fire have the approximate value of hits; such shots only, or actual hits, contribute toward fire superiority.

Fire discipline implies that, in a firing line without leaders, each man retains his presence of mind and directs effective fire upon the proper target.

252. **Rate of fire.** To create a correct appreciation of the requirements of fire discipline, men are taught that the rate of fire (par. 144) should be as rapid as is consistent with accurate aiming; that the rate will depend upon the visibility, proximity, and size of the target; and that the proper rate will ordinarily suggest itself to each trained man, usually rendering cautions or commands unnecessary.

In attack the highest rate of fire is employed at the halt preceding the assault, and in pursuing fire.

253. **Position fire in advance by rushes.** In an advance by rushes (par. 219), leaders of troops in firing positions are responsible for the delivery of heavy fire to cover the advance of each rushing fraction. Troops are trained to change slightly the direction of fire so as not to endanger the flanks of advanced portions of the firing line.

254. **Action in defense, when target disappears.** In defense, when the target disappears behind cover, platoon leaders suspend fire (par. 146), prepare their platoons to fire upon the point where it is expected to reappear, and greet its reappearance instantly with vigorous fire.

APPENDIX, INFANTRY DRILL REGULATIONS FOR ENFIELD RIFLE

(Model 1917)

War Department,
Washington, September 15, 1917.

Paragraphs 75, 96, 99, 139, 141, 142, 145, 150, and 745, Infantry Drill Regulations, 1911, apply only to troops armed with the United States rifle, Model 1903. For troops armed with the United States rifle, Model 1917 (Enfield), the alternative paragraphs published herewith will govern.

By order of the Secretary of War.
HUGH L. SCOTT,
Major General, Chief of Staff.

Official:
H. P. McCAIN,
The Adjutant General.

255. The following rules govern the carrying of the piece:

First. The piece is not carried with cartridges in either the chamber or the magazine except when especially ordered. When so loaded, or supposed to be loaded, it is habitually carried locked; that is, with **safety lock** turned to the "**Safe.**" At all other times it is carried unlocked, with the trigger pulled.

Second. Whenever troops are found under arms, pieces are immediately inspected at the commands: 1. **Inspection,** 2. **ARMS,** 3. **Order (right shoulder, port),** 4. **ARMS.**

A similar inspection is made immediately before dismissal.

If cartridges are found in the chamber or magazine they are removed and placed in the belt.

Third. The bayonet is not fixed except in bayonet exercise, on guard, or for combat.

Fourth. **Fall in** is executed with the piece at the order arms. **Fall out, rest,** and **at ease** are executed as without arms. On resuming **attention** the position of order arms is taken.

Fifth. If at the order, unless otherwise prescribed, the piece is brought to the right shoulder at the command **march,** the three motions corresponding with the first three steps. Movements may be executed at the trail by prefacing the preparatory command with the words **at trail;** as 1. **At trail, forward,** 2. **MARCH.** The trail is taken at the command **march.**

When the facings, alignments, open and close ranks, taking interval or distance, and assemblings are executed from the order, raise the piece to the **trail** while in motion and resume the order on halting.

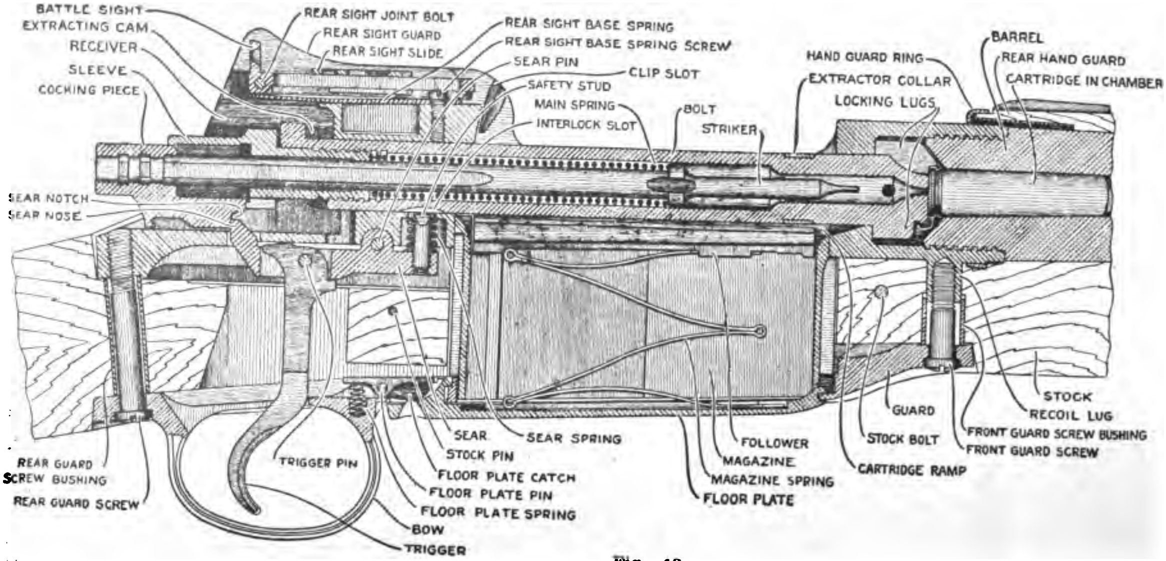

BATTLE SIGHT
EXTRACTING CAM
RECEIVER
SLEEVE
COCKING PIECE
REAR SIGHT JOINT BOLT
REAR SIGHT GUARD
REAR SIGHT SLIDE
REAR SIGHT BASE SPRING
REAR SIGHT BASE SPRING SCREW
SEAR PIN
CLIP SLOT
SAFETY STUD
MAIN SPRING
INTERLOCK SLOT
BOLT
STRIKER
HAND GUARD RING
EXTRACTOR COLLAR
LOCKING LUGS
BARREL
REAR HAND GUARD
CARTRIDGE IN CHAMBER
SEAR NOTCH
SEAR NOSE
STOCK
RECOIL LUG
FRONT GUARD SCREW BUSHING
FRONT GUARD SCREW
GUARD
STOCK BOLT
CARTRIDGE RAMP
FOLLOWER
MAGAZINE
MAGAZINE SPRING
FLOOR PLATE
SEAR
SEAR SPRING
STOCK PIN
FLOOR PLATE CATCH
FLOOR PLATE PIN
FLOOR PLATE SPRING
BOW
TRIGGER
TRIGGER PIN
REAR GUARD
SCREW BUSHING
REAR GUARD SCREW

Fig. 40

Sixth. The piece is brought to the order on halting. The execution of the order begins when the halt is completed.

Seventh. A disengaged hand in double time is held as when without arms.

256. Being at order arms: 1. **Unfix**, 2. **BAYONET.**

If the bayonet scabbard is carried on the belt: Execute parade rest; grasp the handle of the bayonet firmly with the right hand, pressing the spring with the forefinger of the left hand; raise the bayonet until the handle is about 12 inches above the muzzle of the piece; the point to the left, back of the hand toward the body, and glancing at the scabbard, return the bayonet, the blade passing between the left arm and the body; regrasp the piece with the right hand and resume the order.

If the bayonet scabbard is carried on the haversack: Take the bayonet from the rifle with the left hand and return it to the scabbard in the most convenient manner.

If marching or lying down, the bayonet is fixed and unfixed in the most expeditious and convenient manner and the piece returned to the original position.

Fix and unfix bayonet are executed with promptness and regularity, but not in cadence.

257. Being at inspection arms: 1. **Order (right shoulder, port)**, 2. **ARMS.**

At the preparatory command press the follower down with the fingers of the left hand, then push the bolt forward just enough to engage the follower, raise the fingers of the left hand, push the bolt forward, turn the handle down, pull the trigger, and resume **port arms.** At the command **arms**, complete the movement ordered.

To Load

258. Being in line or skirmish line at halt: 1. **With dummy (blank or ball) cartridges**, 2. **LOAD.**

At the command **load** each front rank man or skirmisher faces half right and carries the right foot to the right, about 1 foot, to such a position as will insure the greatest firmness and steadiness of the body; raises or lowers the piece and drops it into the left hand at the balance, left thumb extended along the stock and muzzle at the height of the breast. With the right hand he turns and draws the bolt back, takes a loaded clip and inserts the end in the clip slots, places the thumb on the powder space at the top cartridge, the fingers extending around the piece and tips resting on the magazine floor plate; forces the cartridges into the magazine by pressing down with the thumb; without removing the clip, thrusts the bolt home, turning down the handle; turns the safety lock to the ''Safe'' and carries the hand to the small of the stock. Each rear rank man moves to the right front, takes a similar position opposite the interval to the right of his front rank man, muzzle of the piece extending beyond the front rank, and loads.

A skirmish line may load while moving, the pieces being held as nearly as practicable in the position of load.

If kneeling or sitting, the position of the piece is similar; if kneeling, the left forearm rests on the left thigh; if sitting, the elbows are supported by the knees. If lying down, the left hand steadies and supports the piece at the balance, the toe of the butt resting on the ground, the muzzle off the ground.

For reference, these positions (standing, kneeling, and lying down) are designated as that of **load.**

259. For purposes of simulating firing, 1. **Simulate,** 2. **LOAD,** raise the bolt handle as in the preceding paragraph, draw the bolt back until the cocking piece engages, then close the bolt, and turn the bolt handle down.

The recruits are first taught to **simulate** loading and firing; after a few lessons dummy cartridges are used. Later, blank cartridges may be used.

260. **Omit.**

261. **Unload:** Take the position of load, turn the safety lock up and move the bolt alternately backward and forward until all the cartridges are ejected. After the last cartridge is ejected the chamber is closed by pressing the follower down with the fingers of the left hand, to engage it under the bolt, and then thrusting the bolt home. The trigger is pulled. The cartridges are then picked up, cleaned, and returned to the belt and the piece is brought to the order.

262. To continue the firing: 1. **Aim,** 2. **Squad,** 3. **FIRE.**

Each command is executed as previously explained. **Load** is executed by drawing back and thrusting home the bolt with the right hand, leaving the safety lock at the "Ready."

263. **Cease firing:** Firing stops; pieces are loaded and locked; the sights are laid down and the piece is brought to the order. Cease firing is used for long pauses to prepare for changes of position or to steady the men.

Company Inspection

264. Being in line at halt: 1. **Open ranks,** 2. **MARCH.**

At the command **march** the front rank executes right dress; the rear rank and the file closers march backward 4 steps, halt, and execute right dress; the lieutenants pass around their respective flanks and take post, facing to the front, 3 paces in front of the center of their respective platoons. The captain aligns the front rank, rear rank, and file closers, takes post 3 paces in front of the right guide, facing to the left and commands: 1. **Front,** 2. **PREPARE FOR INSPECTION.**

At the second command the lieutenants carry saber; the captain returns saber and inspects them, after which they face about, order saber, and stand at ease; upon the completion of the inspection they carry saber, face about, and order saber. The captain may direct the lieutenants to accompany or assist him, in which case they return saber and, at the close of the inspection, resume their posts in front of the company, draw and carry saber.

Having inspected the lieutenants, the captain proceeds to the right of the company. Each man, as the captain approaches him, executes **inspection arms.**

The captain takes the piece, grasping it with his right hand just below the lower band, the man dropping his hands; the captain inspects the piece, and, with the hand and piece in the same position as in receiving it, hands it back to the man, who takes it with the left hand at the balance and executes **order arms.**

As the captain returns the piece the next man executes **inspection arms**, and so on through the company.

Should the piece be inspected without handling, each man executes **order arms** as soon as the captain passes to the next man.

The inspection is from right to left in front, and from left to right in rear of each rank and of the line of file closers.

When approached by the captain the first sergeant executes **inspection saber.** Enlisted men armed with the pistol execute **inspection pistol** by drawing the pistol from the holster and holding it diagonally across the body, barrel up, and 6 inches in front of the neck, muzzle pointing up and to the left. The pistol is returned to the holster as soon as the captain passes.

Upon completion of the inspection the captain takes post facing to the left in front of the right guide and on line with the lieutenants and commands: 1. **Close ranks,** 2. **MARCH.**

At the command **march** the lieutenants resume their posts in line; the rear rank closes to 40 inches, each man covering his file leader; the file closers close to 2 paces from the rear rank.

LESSON 6

THEORY OF TARGET PRACTICE

265. **Importance.** The care of his rifle should be the soldier's first thought; for, if he would have it take care of him in time of danger, he must take care of it at all times.

It is a generally recognized fact that more rifles become inaccurate and unserviceable by the lack of care than by firing.

The instructions for taking care of the rifle are few and simple. Learn them well and *apply them constantly*—it only requires a little care and patience. You will be well repaid for it. It may some day save your life.

The following are the implements and materials used in cleaning the rifle:

266. **The Oiler and Thong Case,** Fig. 41, is carried in the butt of the stock. It consists of a metal tube about six inches long, divided by a partition into two sections; *Oiler,* A, in which a small supply of sperm or "3-in-One" oil is carried; and *Thong Case,* B, in which the thong and brush are carried.

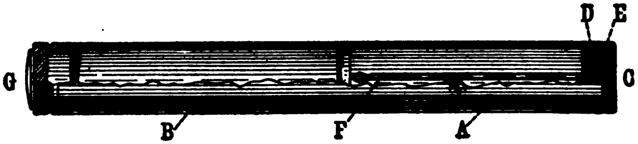


Fig. 41

The *Oiler* is fitted with a wire, F, which reaches to the bottom of the *oiler,* and is used for applying oil, a drop or more at the time.

The oil is only for the lubrication of the working parts.

There is a leather pad on the outer end of the *Thong Case,* G, which prevents the noise that would result from the oiler striking the butt plate.

The *Oiler* and *Thong Case* should always be inserted in the stock so that the leather pad will be next to the butt plate.

The soldier should see that there is always a good supply of oil in the oiler.

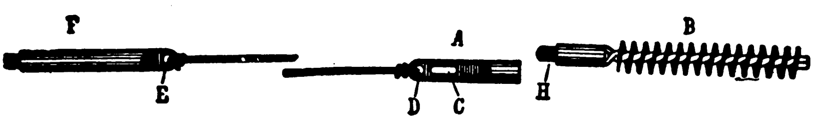


Fig. 42

267. The Thong and Brush, used in cleaning the bore of the rifle, are shown in Fig. 42.

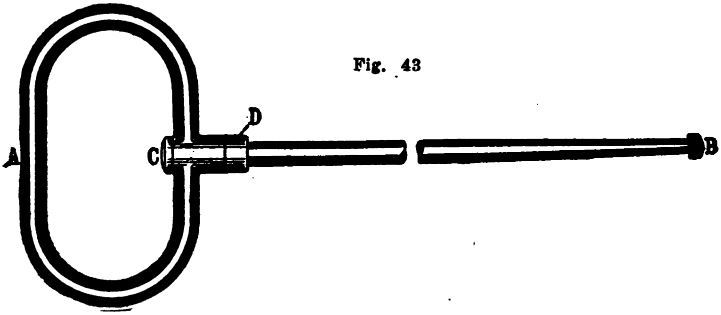
The *thong tip,* A, into which the *brush,* B, is screwed, is provided with a *rag slot,* C; one end of the thong or string, is fastened to the *tip* at D, and other end is fastened the *weight,* F, at E.

In cleaning the bore by means of the thong, the brush or rag should always be drawn from the muzzle toward the breech.

The thong and brush are used in the field, where it is not practicable to carry the cleaning rod.

268. The Cleaning Rod, Fig. 43, is of sufficient length to extend through the barrel.

Fig. 43



Always insert the cleaning rod into the bore from the breech, and never from the muzzle, which it may injure if inserted from that end. The bolt must, of course, always be removed before the rod is inserted.

The cleaning rod is used in garrison and on the target range. It is easier to manipulate than the thong and brush, cleans the rifle better and is less liable to injure the bore.

269. The Screw Driver, Fig. 44, has the *large blade,* A, *the small blade,* B, the *spur,* C, and the *pin,* D.

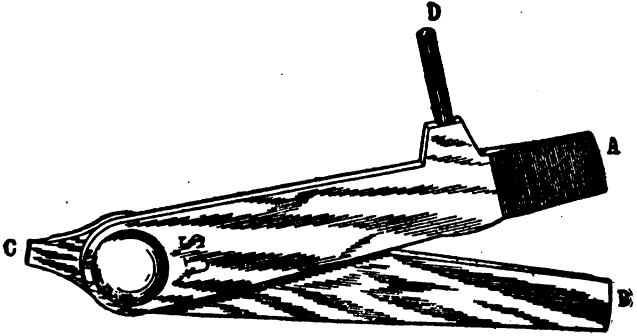


Fig. 44

The *large blade* should be used for the large butt plate screw, the butt plate cap screw, and the guard screws.

The *small blade* should be used on all other screws except the cut-off spindle screw, for which the spur should be used.

The *pin* serves as a drift in removing the butt plate cap, ejector, floor plate catch, sear joint and trigger pins, and the band spring.

270. **Ordnance Department Solutions and Oil.** The following solutions and oil are furnished organizations by the Ordnance Department:

Soda solution. Used for removing the *powder* fouling from the bore.

Standard metal fouling solution. Used for removing the *metal* fouling from the bore.

Swabbing solution. Used in swabbing out the bore after the powder and the metal fouling have been removed.

Sperm Oil. Used in lubricating mechanism and other parts of rifle to reduce friction and also to prevent rust.

271. **Hoppe's Nitro Powder Solvent No. 9.** The author would strongly recommend Hoppe's Nitro Powder Solvent No. 9 for cleaning out powder residue, and removing leading, nickel, and rust. After cleaning the bore be sure to pass through it a clean patch well saturated with ''3-in-One'' oil, as it will always prevent rusting in any climate.

The use of this powder solvent, per instructions on bottle, is simpler and less laborious than the use of the Ordnance Department solutions, and it accomplishes the same thing fully as well.

272. **''3-in-One Oil.''** The best and most satisfactory oil known to the authors is ''3-in-One Oil,'' which is sold at all post exchanges. In addition to being a very high grade oil, it is put up in a handy can with a screw-top neck, which makes the most convenient oil container on the market. This oil is used more than any other in the Army, the Marine Corps, and the National Guard for cleaning and lubricating rifles and for preventing rust.

273. **How to apply oil.** Do not pour or squirt oil on the rifle.

Put a few drops on a piece of clean cloth, preferably cotton, and rub with the cloth, thereby avoiding the use of an unnecessary amount.

Cams and bearings can be oiled this way. However, if the oiler is used instead because of greater ease in reaching them, oil them *lightly*. To soak with oil accomplishes no more than to cover with a light coating—it merely results in excessive, undesirable smearing and a waste of oil.

274. **Care of the Bore.** The bore of the rifle is manufactured with the greatest care in order that a high degree of accuracy may be obtained, and it should, therefore, be properly cared for.

The proper care of the bore requires conscientious, careful work, but it pays well in reduced labor of cleaning and in prolonged accuracy life of the rifle, and better results in target practice.

275. **How to clean the bore.** With the cleaning rod the bore must always be cleaned from the breech—never from the muzzle. Cleaning from the muzzle is liable to wear and otherwise injure the mouth of the barrel, which is easily injured and thus the piece rendered inaccurate.

First, remove the bolt from the rifle, place the muzzle on the floor, a board or piece of canvas, and do not remove it therefrom while the cleaning-rod is in the bore. Never place the muzzle on the bare ground, lest dirt should get into it. (Note. Of course, if a rack is provided for cleaning rifles, it should be used instead of placing the muzzle on the floor.)

To clean the bore use patches of rag, preferably canton flannel, cutting them into squares of such size that they may easily run through the barrel.

276. What care of the bore consists of. Briefly stated, the care of the bore consists of removing the fouling resulting from firing to obtain a chemically clean surface, and then coating this surface with a film of oil to prevent rusting.

277. Kinds of fouling. The fouling which results from firing is of two kinds—the *powder fouling,* from the burning of the powder; and the *metal fouling,* from the nickel scraped off the bullet as it passes through the bore.

The *powder fouling* is highly corrosive; that is, it causes rust and eats into the metal, and it must, therefore, be removed as soon as possible.

The *metal fouling* itself will not cause rust, but it may cover the powder fouling and thus prevent the cleaning material from getting at the powder fouling, which, as stated before, will eat into the metal. When metal fouling accumulates in noticeable quantities it reduces the accuracy of the rifle.

278. How to remove powder fouling. Powder fouling may be readily removed by scrubbing the bore with hot soda solution, but this solution has no effect on the metal fouling.

It is, therefore necessary to remove all metal fouling before we are sure that all powder fouling has been removed and that the bore may be safely oiled.

Ordinarily, after firing a barrel in good condition, the metal fouling is so slight as to be hardly perceptible, and is easily removed by solvents.

However, due to the accumulation of metal fouling, pitting (little hollows in the metal) or the presence of dust, or other abrasives (substances that cause the metal to wear away by rubbing), the fouling may occur in clearly visible flakes or patches and be much more difficult to remove.

279. How to remove fouling. After scrubbing out the bore with the soda solution, plug it from the breech with a cork at the front end of the chamber or where the rifling begins.

Slip one of the 2-inch sections of rubber hose over the muzzle down to the sight and fill with the standard solution to at least one-half inch above the muzzle of the barrel.

Let it stand for 30 minutes, then pour out the solution, remove the hose and breech plug, and swab out thoroughly with soda solution to neutralize and remove all trace of ammonia and powder fouling.

Wipe the barrel clean, dry, and oil with "3-in-One."

With few exceptions, one application is sufficient, but if all fouling is not removed, repeat the operation.

280. How to proceed in cleaning the bore.

To clean the bore after firing, proceed as follows:

Swab out the bore with soda solution to remove powder fouling. A convenient way to do this is to insert the muzzle of the rifle into the can containing the solution and with the cleaning-rod inserted from the breech, pump the barrel full a few times.

Remove and dry with a couple of patches of cloth. Examine to see whether any patches of metal fouling are in evidence, and if so, then remove same as explained above. If no metal fouling is in evidence, then swab out with the swabbing solution. The amount of swabbing required with the swabbing solution can be determined only by experience assisted by the color of the patches of cloth. Ordinarily a couple of minutes' work is sufficient. Dry thoroughly, and oil.

As a measure of safety a patch should **always** be run through the bore on the next day and the bore examined to insure that cleaning has been properly done. The bore should then be oiled again.

281. **Necessity for preventing formation of pits.** It is a fact recognized by all that a highly polished steel surface rusts much less easily than one which is roughened; also that a barrel which is pitted, fouls much more rapidly than one which is smooth. Every effort, therefore, should be made to prevent the formation of pits, which are merely enlarged rust spots, and which not only affect the accuracy of the piece but also increase the labor of cleaning.

282. **If swabbing solution or standard metal fouling solution is not available,** the barrel should be scrubbed as already described, with the soda solution, dried, and oiled with "3-in-One." At the end of 24 hours it should again be cleaned, when it will usually be found to have "sweated." Usually a second cleaning is sufficient, but to insure safety it should be again examined at the end of a few days, before final oiling.

Of course, the swabbing solution should always be used, if available, for it must be remembered that **each "puff" when the bore "sweats" is an incipient rust pit.**

What has just been said contemplates the use of the solutions furnished by the Ordnance Department. As stated before, however, the same result will be obtained with less labor if Hoppe's Nitro Powder Solvent No. 9 is used.

283. **How to oil a barrel.** The proper method of oiling a barrel is as follows:

Wipe the cleaning rod dry; select a clean patch of cloth and smear it well with sperm or warmed cosmic oil, being sure that the cosmic has soaked into the patch well; scrub the bore with patch, finally drawing the patch smoothly from the muzzle to the breech, allowing the cleaning rod to turn with the rifling. The bore will be found now to be smooth and bright so that any subsequent rust or "sweating" can be easily detected by inspection. (By "sweating" is meant, rust having formed under the coating of metal fouling where powder fouling was present, the surface is puffed up.)

284. **Care of the chamber.** The chamber of the rifle is often neglected because it is not readily inspected. Care should be taken to see that it is cleaned as thoroughly as the bore. A roughened chamber delays greatly the rapidity of fire, and not infrequently causes shells to stick.

285. **The bolt.** To clean the bolt, remove; clean all parts thoroughly with an oily rag; dry, and before assembling **lightly** oil the firing-pin, the barrel of the sleeve, the striker, the well of the bolt and all cams.

286. The sights. Both the front and rear sights should be cared for just as you would care for the works of your watch. If the sights are injured, the rifle will not shoot as aimed.

The front sight cover issued by the Ordnance Department protects the front sight.

287. The magazine. The magazine should be kept clean and covered with a thin coat of oil.

288. The stock. The stock should receive a light coat of raw linseed oil once a month, or after any wetting from rain, dew, etc. The oil should be thoroughly rubbed in with the hand.

289. Care of the mechanism. When the rifle has been wet or exposed to unfavorable climatic conditions, the bolt should be withdrawn and all working parts carefully wiped with a dry cloth, and then gone over with an oily rag.

The same thing should be done after firing.

All working parts should habitually be *lightly* oiled with a thin-bodied oil, such as sperm oil. (''3-in-One'' oil is recommended.)

290. The care of all metal parts. All metal parts of the rifle should be kept clean and free from rust.

291. Cams and bearings. All cams and bearings must be kept constantly oiled.

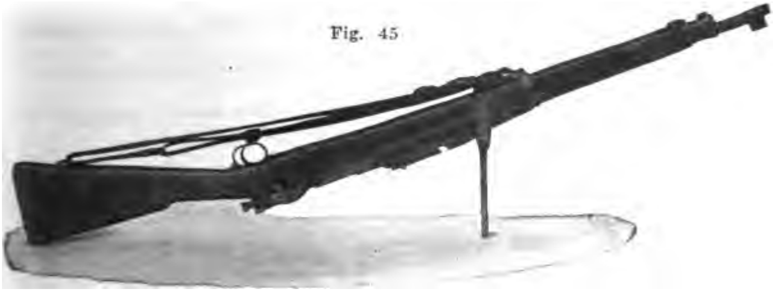
292. Things to Be Remembered

1. It is easier to prevent than to remove rust.
2. To remove rust, apply oil with a rag, and let it stand for awhile so as to soften the rust; then wipe with a dry rag.
3. Emery paper or a burnisher must never be used in removing rust, for it also removes the bluing.

However, an ordinary rubber eraser will be found very serviceable for removing rust.

4. To prevent rust and dirt in the bore, run a rag through at least once each day.
5. Never, under any circumstances, put away a rifle that has been fired or exposed to bad weather, without first cleaning it.
6. Never lay your rifle flat on the ground. Not only is there danger of dirt or other foreign matter getting into the bore, but a vehicle may run over it, or some one may step on the sight. Always rest it up securely against something. On the target range it is well for every

Fig. 45



soldier to have a short wood or metal fork, as shown in Fig. 45, on which to rest his rifle.

7. In coming to the order from any position, always bring the rifle to the ground **gently**.

Army Regulations Regarding the Rifle

293. *Are enlisted men allowed to take their arms apart?*

No; not unless they have the permission of a commissioned officer; and even then only under proper supervision and in the manner prescribed in the descriptive pamphlet issued by the Ordnance Department. (A. R. 292.)

(Except when repairs are needed, the following named parts should never be dismounted by the soldier, and whenever they are taken apart they should be removed only by the artificer, or someone else familiar with the handling of tools and delicate mechanism: Bolt stop, cut off, safety lock, sleeve lock, front sight, front sight movable stud, lower band, upper band and stacking swivel screws.)

(Unless the screw driver is handled carefully and with some skill the screws are sure to be injured either at the head or thread. The soldier may dismount the bolt and magazine mechanism for the purpose of cleaning them, but he is not permitted to do any further dismounting without the authority of a commissioned officer.)

Is the polishing of blued and browned parts permitted?

No, and rebluing, rebrowning, putting any portion of an arm in fire, removing a receiver from a barrel, mutilating any part by firing otherwise, and attempting to beautify or change the finish, are prohibited. However, the prohibition of attempts to beautify or change the finish of arms is not construed as forbidding the application of raw linseed oil to the wood parts of arms. This oil is considered necessary for the preservation of the wood, and it may be used for such polishing as can be given when rubbing in one or more coats when necessary. The use of raw linseed oil only is allowed for redressing and the application for such purpose of any kind of wax or varnish, including heelball, is strictly prohibited. (Army Regulations 292.)

Is the use of tompions in small arms permitted?*

No, it is prohibited by regulations. (Army Regulations 292.)

Should pieces be unloaded before being taken to quarters or tents?

Yes, unless it is otherwise ordered. They should also be unloaded as soon as the men using them are relieved from duty. (Army Regulations 292.)

Should a loaded or unloaded rifle or revolver ever be pointed at anyone in play?

No, under no circumstances whatsoever. ***A soldier should never point a rifle or revolver at a person unless he intends to shoot him.***

---

*Wooden stoppers or plugs that are put into the muzzles of rifles and other arms to keep out dirt and water.

LESSON 7

HOW TO SHOOT*

294. Value and importance of shooting straight. The value of a soldier as a fighting man is measured by his ability to shoot straight. If you can't shoot, you have no business on the firing line,—you merely take up room without accomplishing anything. In other words, you are in the way, and would be better off at home where you would not be risking your life unnecessarily, and would not be a useless burden to your officers.

From every standpoint it is to your advantage to learn to shoot. Not only does it mean more pay to you,† but it may some day mean more to you than all the riches in the world,—*it may save your life.*

If you ever go into battle, the consciousness that you can shoot as well as the other fellow, if not even a little better, will give you a comforting feeling of confidence that will mean more to you than all the extra pay you may have gotten for qualification in marksmanship. This comforting feeling of confidence will repay you a thousand times over for all the time, care, and patience that you may have devoted to making yourself a good shot.

Remember, although you may not actually hit the other fellow, if you can shoot straight enough to make your bullets pass close to him, you will make him so nervous that he will drop down behind cover and quit shooting, or his shots will all go wild.

Any man of normal eyesight and fair intelligence can, with DETERMINATION and PROPER INSTRUCTION, become a fair shot if not an excellent one.

295. Factors that enter into shooting. While there are a number of factors, some very important, others less so, that enter into shooting (for example, effect of light and wind, hold of piece, trigger squeeze, physical condition, etc.), none of them are especially difficult, and they can all be mastered by *determination and practice.*

296. Getting out of the rifle all there is in it. Our rifle is the best and most accurate rifle in the world.

There are certain things that it is capable of doing, *that it can be made to do.*

Whether the soldier can make his rifle do what it is capable of doing,—whether he can get out of it everything there is in it (all the hidden 4's and 5's),—whether he can make it come pretty nearly doing what he wants it to do,—depends upon the soldier's *determination and instruction.*

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*The author is indebted to Capt. John W. Lang, 29th Inf., for valuable assistance in the preparation of this chapter.

†If you qualify as marksman, you get $2 a month extra; as sharpshooter, $3; as expert rifleman, $5.

In other words, with his officers and noncommissioned officers to instruct him, it is entirely up to the soldier himself as to whether or not he becomes at least a marksman.

297. The trajectory. As the bullet passes through the air it makes a curved line something like this:

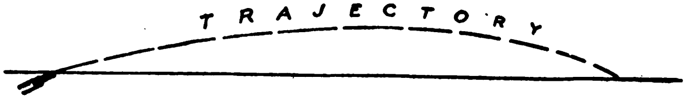


Fig. 46

This curved line is called the *trajectory.*

The resistance of the air and the force of gravity (the force that pulls all bodies toward the earth), are the two things that make the path of the bullet a curved line, just the same as they make the path of the baseball thrown by the player a curved line.

The resistance of the air holds the bullet back and the force of gravity pulls it down, so that the two acting together make the bullet's path curved.

The longer the range the more will the path of the bullet (the trajectory) be curved, as shown by the following drawing:

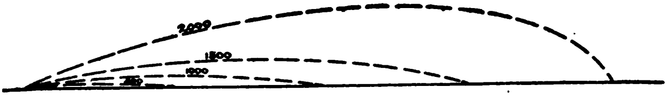


Fig. 47

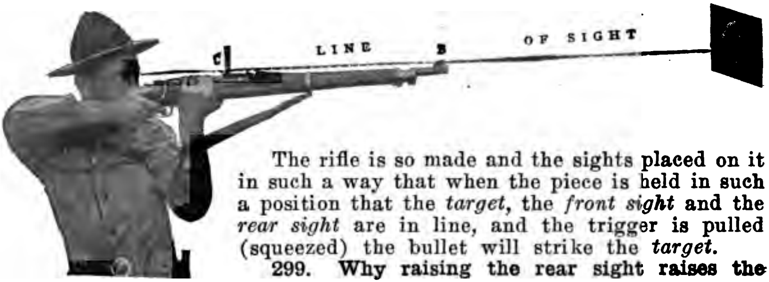
The principle involved is the same as that involved in throwing a baseball. For example, if you throw a baseball very hard from third to first base, you can make it reach first base in almost a straight line, without going very high in the air, but if you wanted to throw the ball home from the outfield, you would have to throw it pretty high in order to get it there and its path (trajectory) would be curved very much. In other words, you've got to make allowance for the resistance of the air and the force of gravity.

An expert ball player knows, through practice, just how high it is necessary to throw a ball in order for it to reach certain points. A beginner does not know.

298. Sighting or Aiming. Now, on the rifle there are two "sights,"—the *front sight and the rear sight,*—which enable the rifleman to regulate the path of the bullet, as the ball player regulates the path of the ball.

If the ball player wants distance, he throws the ball high (raises the path, the trajectory), using his eye and guesswork, and likewise if the rifleman wants to shoot at a distant target, he, too, shoots the bullet high (that is, he raises the muzzle of his rifle), but he doesn't have to depend upon guesswork. It is all worked out for him by experts and all he need do is to set the *rear sight* for the proper range,—that is, for the distance the object is from him.

Aiming or sighting a rifle consists in bringing into line three objects: The *target,* A, the *front sight,* B, and the *rear sight,* C.



The rifle is so made and the sights placed on it in such a way that when the piece is held in such a position that the *target*, the *front sight* and the *rear sight* are in line, and the trigger is pulled (squeezed) the bullet will strike the *target*.

Fig. 48

299. Why raising the rear sight raises the muzzle.

You raise the muzzle of the piece by raising the rear sight,—that is, raising the rear sight has the effect of raising the muzzle, for the higher you raise the rear sight the higher must you raise the muzzle in order to see the front sight and get in line with the object aimed at and the rear sight.

This is shown in the following illustrations:

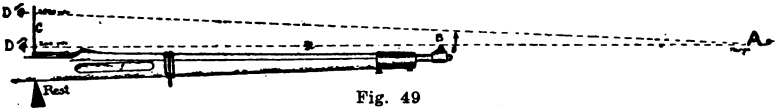


Fig. 49

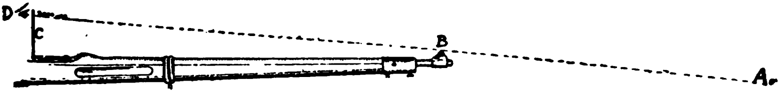


Fig. 50

The rear sight, C, the front sight, B, and the bull's eye, A, are all on a line with the eye, D, the rear sight being set for 200 yards.

Suppose we wanted to shoot at 2000 instead of 200 yards. We would raise the slide up to 20 (2000 yards) on the sight leaf.

In order to see the bull's eye through the notch sight at 2000, we must raise the eye to the position, D. We now have the rear sight, the bull's eye and the eye in line, but we must bring the front sight in line with them, which is done by raising the muzzle of the piece, giving the result shown in Fig. 50.

300. Line of sight. With the open sight the line of sight is determined by a point on the middle line of the notch of the rear sight and the top of the front sight.

With the peep sight, the line of sight is determined by the *center* of the peep and the top of the front sight.

301. Different kinds of sights. The different kinds of sights are as follows:

OPEN SIGHT. By *open sight* is meant the use of any one of the *sighting notches.*

301 (contd.)

To use the open sight:

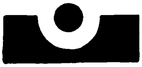


Fig. 51

1. Look through the sighting notch at the target. (Fig. 51.)

2. Bring the top of the front sight *on a line with the top and in the center* of the sight notch, *the top of the front sight being just under the bull's eye.*

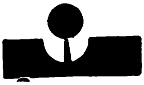


Fig. 52

Because of its wide field of view and its readiness in getting a quick aim with it, the open sight is the one that is generally used in the later stages of battle, or when fire is to start immediately.

The following positions of the front sight are *incorrect:*

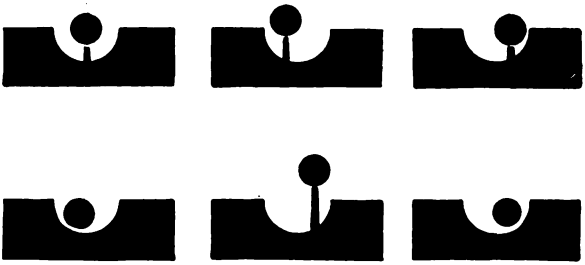


Fig. 53

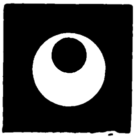


Fig. 54

PEEP SIGHT. By *peep sight* is meant the use of the *peep hole* in the drift slide.

To use the *peep sight:*

1. Look through the peep hole at the target. (Fig. 54.)

2. Bring the top of the front sight to the *center* of the peep hole, *the top of the front sight being just under the bull's eye.* (Fig. 55.)

Be sure to get the top of front sight, as in Fig. 55, *and not the bull's eye,* as in Fig. 56, *in center of the peep hole.*

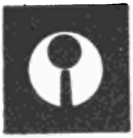


Fig. 55

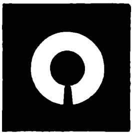


Fig. 56

ADVANTAGE OF THE PEEP SIGHT. The advantage of the peep sight over the open sight is due to the fact that it is easier to center the top of the front sight in the peep hole and thus get the same amount of front sight each time.

For example you know at once, without measuring, that the dots in the circles, Fig. 57, are not centered, and that the one in the circle in Fig. 58, is.

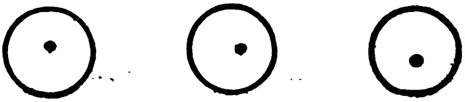


Fig. 57

After a little practice, in looking through the peep hole the eye almost automatically centers the top of the front sight.

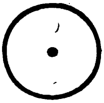


Fig. 58

DISADVANTAGE OF THE PEEP SIGHT. The disadvantage of the peep sight is that its limited field of view and lack of readiness in getting a quick aim with it limit its use to those stages of the combat when comparative deliberation will be possible.

302. **What the rifleman looks at when he fires.** The eye can be focused accurately upon objects at only one distance at a time; all other objects we see will be more or less blurred fuzzy looking, depending upon their distance from the object upon which our eye is focused. Hold your finger up and look at it. You will see your finger clearly—the rest of the hand and the arm will be more or less blurred—objects about you will be seen only indistinctly. Hold your hand in place, but focus your eye on some object beyond your finger on a line with your finger and your eye. You will still see your finger but it will now be fuzzy and indistinct.

In shooting we have three points which are placed in a line--the rear sight, the front sight and the target. It is impossible to focus the eye on all three at the same time. One must be chosen.

Which shall we choose?

The following illustrations show the appearance of the bull's eye, depending upon whether the eye is focused on the front sight, rear sight or bull's eye.

The eye focused on one object only.

In Fig. 59 the eye is focused on the *bull's eye.* Notice how clear cut and distinct it is, and the blurring of the front and rear sights.

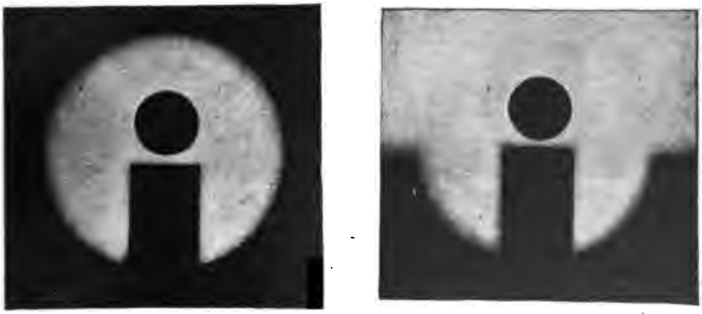


Fig. 59

Peep normal sight **Open normal sight**

302 (contd.)

In Fig. 60 the eye is focused on the *front sight.* Notice how clear cut and distinct it is, and the blurring of the bull's eye.

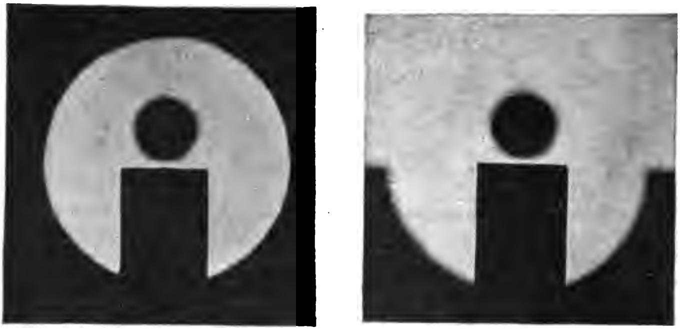


Fig. 60

In Fig. 61 the eye is focused on the *rear sight.* Notice how clear cut and distinct it is, and how blurred the front sight and the bull's eye are.

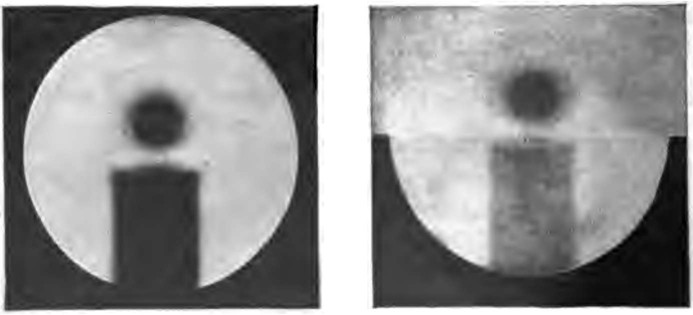


Fig. 61

The rifleman who attains proficiency *focuses his eye on the target while aiming,* but he glances at one sight and then the other to see that they are aligned properly, then back at the target, and at the instant of discharge *his eye is on the target.*

Blurring is best overcome by using the peep sight, which may be compared to looking through a round window,—whatever blurring there is will be uniform and concentric and we can still center the TOP OF THE FRONT SIGHT without difficulty.

Normal Sight. The amount of front sight taken in Figs. 59, 60, and 61, is called the normal sight and is the one that the soldier should always use, either with the open notch or peep sight, as it is the only sight which assures the taking of the same amount of front sight every time. In other words, it assures a greater degree of *uniformity* in sighting, which is one of the most important factors in shooting. By uniformity in sighting is meant taking the same amount of sight each time.

If you take *less* than the amount of front sight used in the normal sight, it will, of course, have the effect of *lowering* the muzzle of the piece, and consequently you will hit a point *lower* than if you had used the normal sight.

On the other hand, if you take *more* than the amount of front sight used in the normal sight, it will, of course, have the effect of *raising* the muzzle and consequently you will hit a point *higher* than if you had used the normal sight.

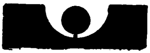


Fig. 62
Fine sight

Fine Sight. Although occasionally a man will be found who can get good results by using the fine sight, the average man cannot, and this form of sighting is, therefore, to be avoided.

Full Sight. The so-called *full sight* must be avoided under all circumstances. It is merely mentioned and shown here to point out a fault that must be carefully avoided.

The objections to its use are the same as in the case of the fine sight,—that is, lack of uniformity in the amount of sight taken.

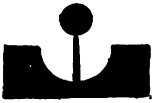


Fig. 63
Full sight

Battle Sight. By *battle sight* we mean the position of the rear sight with the leaf down. There is a sighting notch on the top of the leaf, or rather on top of the leaf slide which works up and down the leaf.

The battle sight is the only sight used in *rapid fire*. In unexpected, close encounters the side that first opens a rapid and accurate fire has a great advantage over the other. Again, a soldier on patrol generally has no time to set his sight, if suddenly attacked at close range. The battle sight, may, therefore, be called the *emergency sight*,—the *handy, quick sight*. The soldier should, therefore, become thoroughly familiar with the use of this sight.

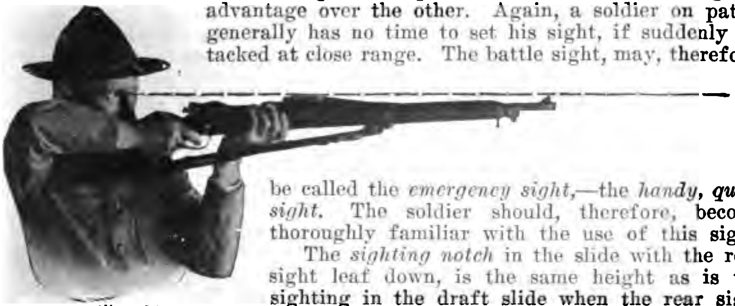


Fig. 64
Battle sight

The *sighting notch* in the slide with the rear sight leaf down, is the same height as is the sighting in the draft slide when the rear sight leaf is raised and set at 530 yards.

That is to say, *battle sight* is equivalent to a sight setting of 530 yards. Therefore, in shooting with battle sight at objects nearer than 530 yards you must aim lower.

The following shows the trajectory of the bullet when *battle sight* is used:

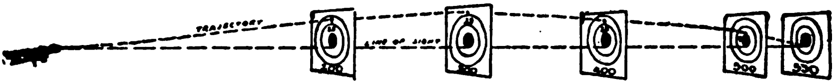


Fig. 65

That is to say, if you were aiming with the battle sight at an object 530 yards away, the bullet would pass 25 inches above an object of the same height at 200 yards, 28 inches above at 300, 23 inches above at 400, and 7 inches above one at 500, which is only another way of saying if shooting with battle sight at an object 200 yards away, you must aim 25 inches (about 2 feet) below the object in order to hit it; if at 300 yards, 28 inches (2½ feet below); if at 400 yards, 23 inches (about 2 feet) below; and if at 500 yards, 7 inches (about ½ foot) below.

Remember that in the case of the battle sight, the position of the slide is immaterial, except as regards accuracy in sighting,—that is, it is immaterial whether the slide is well forward or well back. However, as regards accuracy in sighting, the position of the slide does make a difference, for the greater the distance between the front and rear sights, the more accurate will the sighting be. Hence, the slide should always be as far back as possible.

SIGHTING, POSITION AND AIMING DRILLS

303. Importance of drills.

The importance of the following sighting, position and aiming drills cannot be overestimated. If they are carefully practiced, before firing a single shot at a target, you will have learned how to aim your piece correctly, hold your rifle steadily, squeeze the trigger properly, assume that position best adapted to the particular conformation of your body, and you will also have acquired the quickness and manual skill required for handling the piece in rapid fire.

The sighting, position, and aiming drills teach the fundamental principles of shooting, which are the foundation upon which marksmanship is built.

Do not confine yourself to going through these drills only during drill hours, but go through them frequently at other times. The extent to which it will improve your shooting will more than repay you for your trouble.

SIGHTING DRILLS

304. Object. The objects of the sighting drill are:

1. To show how to bring the rear sight, the front sight and the target into the same line,—that is, to show how to sight properly.
2. To discover and point out errors in sighting,—in other words, to discover the errors you make in sighting and show the reasons for same,

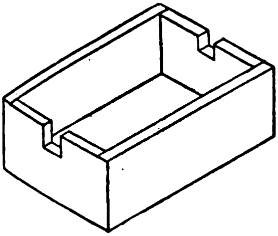


Fig. 66

so that you may be able to correct them properly.

3. To teach uniformity in sighting,—that is, to teach you how to take the same amount of sight each time,—to see every time the same amount of front sight when you look through the rear sight.

Sighting rest for rifle. A good sighting rest for a rifle may be made by removing the top from an empty pistol ammunition box, or a similar box, and then cutting notches in the ends of the box to fit the rifle closely. (Fig. 66.)

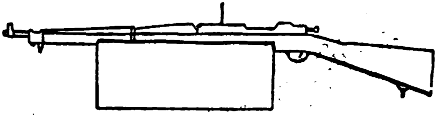


Fig. 67

Place the rifle in these notches with the trigger guard close to and outside one end.

At a convenient distance above the ground fasten a blank sheet of paper on a wall or on a plank nailed to a stake driven into the ground.

Three legs are fastened to the rest (or it may be placed on the ground without any legs), which is placed 20 or 30 feet from the blank sheet of paper.

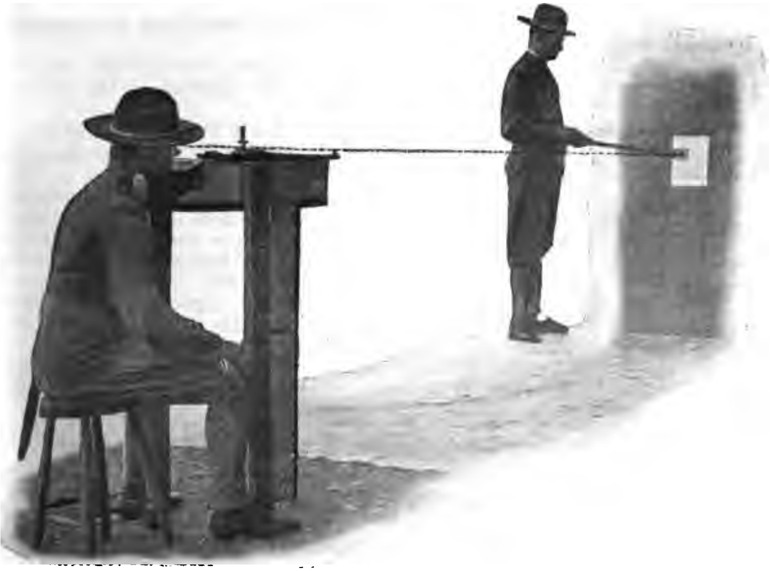


Fig. 68

How to Use Sighting Rest

Make sure that the piece is canted neither to the right nor left, and without touching the rifle or rest, sight the rifle near the center of the blank sheet of paper. (Fig. 68.)

Changes in the line of sight are made by changing the elevation and windage.

A soldier acting as marker is provided with a pencil and a small rod bearing at one end a small piece of white cardboard, with a bull's eye, pierced in the center with a hole just large enough to admit the point of a lead pencil.

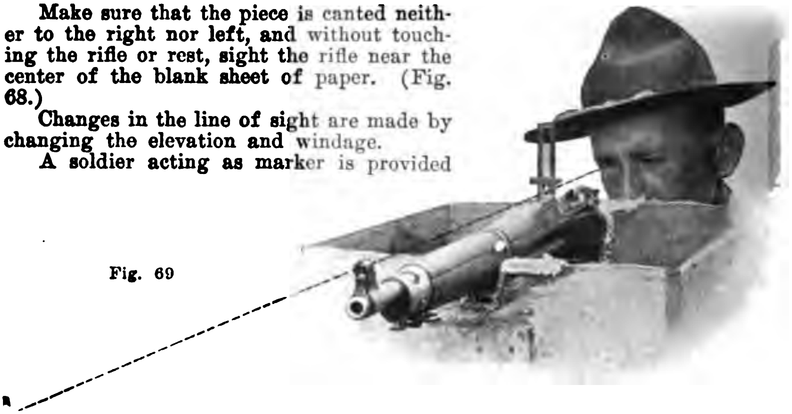


Fig. 69

The soldier sighting directs the marker to move the disk to the right, left, higher, or lower, until the line of aim is established when he commands, "Mark," or "Hold."

At the command "Mark," being careful not to move the disk, the marker records through the hole in the center the position of the disk and then withdraws it.

At the command "Hold," the marker holds the disk carefully in place without marking, until the position is verified by the instructor, and the disk is not withdrawn until so directed.

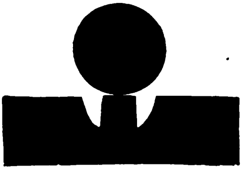


Fig. 70

305. **Point of Aim.** Always be sure to aim at a point just below the black bull's eye,—that is, aim so that there will be a fine line of light between the bottom of the bull's eye and the top of the front sight (Fig. 70). This is important to insure uniformity in sighting,—that is, in order to make sure that the same amount of the front sight is taken each time. If the top of the front sight touches the bottom of the bull's eye it is impossible to say just how much of the front sight is seen.

First Sighting Exercise

306. Using the sighting rest for the rifle (Fig. 68, page 101) require each man to direct the marker to move the disk until the rifle is directed on the bull's eye with the *normal* sight and command, "Hold." If aiming correctly the rear sight, the front sight and the bull's eye will look as shown in Fig. 70, above.

The instructor then verifies this line of sight. Errors, if any, will be pointed out to the soldier and another trial made. If he is still unable to sight correctly, he will be given as many more trials as may be necessary.

Sometimes a man does not know how to place the eye in the line of sight, he will look over or along one side of the notch of the rear sight and believe that he is aiming through the notch because he sees it at the same time that he does the front sight. Again some men in sighting will look at the front sight and not at the object.

Repeat the above exercise, using the *peep* sight. If aiming correctly, the rear sight, the front sight and the bull's eye will look as shown in Fig. 71.

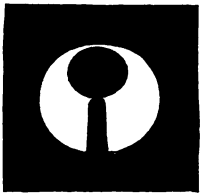


Fig. 71

LESSON 8

SECOND SIGHTING EXERCISE

307. **The triangle of sighting.** Using the sighting rest for the rifle as before (Fig. 68, page 101), direct the marker to move the disk until the rifle is directed on the bull's eye with the *normal* sight and command "Mark," whereupon the marker, being careful not to move the disk, records through the hole in its center, the position of the disk, and withdraws it. Then, being careful not to move the rifle or sights repeat the operation until three marks have been made.

Join the three points by straight lines. The shape and size of the triangle will indicate the nature of the variations made in sighting. For example, if you have taken the same aim each time, you will get a very small triangle something like this: which resulted from taking each time this aim, for instance:

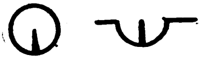


Fig. 72

A triangle like Fig. 73 results from not taking the same amount of front sight each time, as shown in Fig. 74.

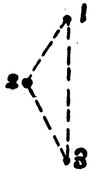


Fig. 73

A triangle like Fig. 75 shows that the front sight was not in the middle of the notch each time, as shown in Fig. 77.

A triangle like Fig. 76 results from a combination of the two errors mentioned above,—that is, not taking the same amount of front sight each time and not having the front sight in the middle of the notch each time, as shown in Fig. 78.

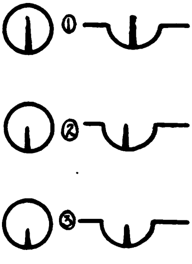


Fig. 74

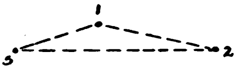


Fig. 75

If any one of the sides of the triangle is longer than one-half inch, the exercise is repeated, each sight being verified by the instructor, who will call the soldier's attention to his errors, if any.

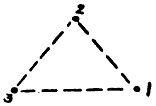


Fig. 76

The smaller the triangle, the better the sighting.

Verifying the Triangle. If the sides of the triangle are so small that they indicate regularity in sighting, mark the center of the triangle and then place the center of the bull's eye on this mark. The instructor then examines the position of the bull's eye with reference to the line of sight. If the bull's eye is properly placed with reference to the line of sight, the soldier aims correctly and with uniformity.

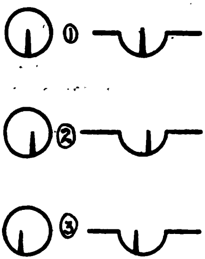


Fig. 77

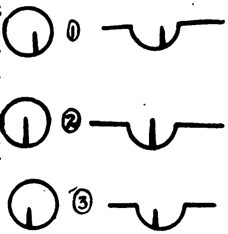


Fig. 78

If the bull's eye is not properly placed with reference to the line of sight, the soldier aims in a regular manner but with a constant error.

Causes of Errors. If the bull's eye is directly above its proper position, the soldier has aimed high,—that is, he has taken too little front sight.

If the bull's eye is directly below its proper position, the soldier has aimed low,—that is, he has taken too much front sight.

If the bull's eye is directly to the right or left of its proper position, the soldier has not sighted through the center of the rear notch and over the top of the front sight. If to the *right*, the soldier has either sighted along the *left* of the rear sight notch or the *right* side of the front sight, or has committed both of these errors.

If the bull's eye is to the *left* of its proper place, the soldier has probably sighted along the *right* of the rear sight notch, or to the *left* of the front sight, or has committed both of these errors.

If the bull's eye is diagonally above and to the right, the soldier has probably combined the errors which placed it too high and too far to the right.

Any other diagonal position would be produced by a similar combination of vertical and horizontal errors.

After the above instruction has been given to one man, the line of sight will be slightly changed by moving the sighting rest or by changing the elevation and windage, and the exercises similarly repeated with other men.

Repeat the exercise, using the *peep* sight.

308. Third Sighting Exercise

This exercise shows the effect of canting the piece.

It is most important that in aiming the sights be kept vertical and the piece not be canted,—that is, that the barrel be not tilted over to the right or left.

If the piece is canted to the right, the sights are lowered to the right and consequently the bullet will strike to the right and below the point aimed at, even though the rifle be otherwise correctly aimed and the sights correctly set.

Similarily if the piece is canted to the left the sights are lowered to the left, and consequently the bullet will strike to the left and low.

This effect of canting the piece may be shown as follows: Use the sighting rest with the rifle firmly held in the notches, the bolt removed.

Paste a black paster near the center of the bottom line of the target. Sight the rifle on this mark, using about 2000 yards' elevation. Then, being careful not to move the rifle, look through the bore and direct the marker to move the disk until the bull's eye is in the center of the field of view and command, "Mark."

Next, turn the rest (with the rifle) over 90° to the right, on its side, and with the same elevation, sight on the same paster as above. Then, being careful not to move the rifle, look through the bore and again direct the marker to move the disk until the bull's eye is in the center of the field of view and command, ''Mark.''

Not considering the fall of the bullet, the first mark represents the point struck with the sight vertical, the second mark represents the point struck, low and to the right, using the same elevation and the same point of aim, when the piece is canted 90° to the right.

Different degrees of canting the piece can be represented by drawing an arc of a circle through the two marks with the paster as a center. The second mark will be at a point on this arc corresponding to the degree of canting the piece.

It is important to know that this effect of canting increases with the distance from the target.

309. Fourth Sighting Exercise

This exercise is to show the advantage of blackened sights.

In strong sunlight, make a triangle of sighting, using a rifle having sights worn bright. Then, being careful not to move the rifle, blacken the sights and make another triangle.

Use dotted lines for the triangle with bright sights and full lines for the triangle made with blackened sights.

The position and size of the two triangles will plainly show the advantage of using blackened sights.

310. Fifth Sighting Exercise

This exercise is to illustrate the importance of knowing the effects of varying degrees of light.

In strong sunlight make a triangle of sighting. Then, being careful not to move the piece, make another triangle, the target and the man sighting having first been shaded.

The relative positions of the triangles will show the importance of knowing the effects of varying degrees of light.

POSITION AND AIMING DRILLS

311. **Object.** The object of the position and aiming drills are:

1. To so educate the muscles of the arm and body that the piece, during the act of aiming, shall be held without restraint, and during the operation of firing shall not be deflected from the target by any convulsive or improper movement of the trigger finger or of the body, arms, or hands.

2. They also establish between the hand and eye such prompt and intimate connection as will insure that the finger shall act upon the trigger, giving the final pressure at the exact moment when the top of the front sight is seen to be directed upon the mark.

3. If at the moment the piece is discharged, it is properly supported and correctly aimed, the mark will surely be hit.

Since any fairly intelligent man can be taught to aim correctly and to hold the sights aligned upon the mark with a fair amount of steadiness, it follows that bad shooting must necessarily arise from causes other than bad aiming. The chief of these causes is known to be the deflection given to the rifle when it is discharged, due to the fact that the soldier, at the moment of firing, instead of SQUEEZING the trigger, *jerks* it. This convulsive action is largely due to lack of familiarity with the methods of firing and to a constrained position of the muscles of the body, arm, and hands, which constrained position it is the object of the position and aiming drills to correct.

312. **General.** In order to correct any tendency to cant the piece, the rear sight is raised in all the exercises.

Place a black paster at which to aim on the wall opposite each man.

The squad being formed in single rank, with an interval of one yard between files, the instructor directs the men to take the position of "Ready," except that the position of the feet is such as to insure the greatest firmness and steadiness of the body. (Note. Some of our best shots turn the toes in, as in horseback riding, claiming that it stiffens the leg muscles and makes the support much steadier.)

The instructor then cautions, "Position and aiming drill."

The exercise which is being taught should be repeated frequently and made continuous. The instructor prefaces the preparatory command by, "Continue the motion," or "At will," and gives the command "Halt" at the conclusion of the exercise, when the soldier returns to the position of "Ready." Or the soldier may be made to repeat the first and second motions by the command "One," "Two," the exercise concluding with the command "Halt."

Care must be taken by the instructor not to make the position and aiming drills tedious. Thirty minutes daily should be spent in this practice during the period of preliminary instruction. After gallery practice is taken up, however, five or ten minutes daily should be sufficient for these exercises.

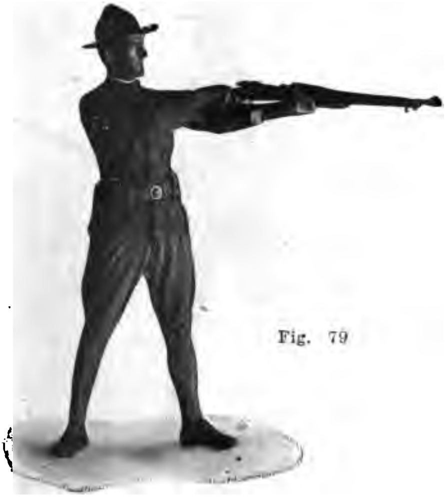


Fig. 79

In order that the instructor may readily detect and correct errors the squads for these drills should not consist of more than eight men.

The instructor should avoid holding the squad in tiresome positions while making explanations or corrections.

Position Exercise

313. The instructor commands: 1. **Position.** 2. **EXERCISE.** At the command, "*Exercise,*" without moving the body or eyes, raise the rifle smartly to the front of the right shoulder to the full extent of the left arm, elbow inclined downward, the barrel nearly horizontal, muzzle slightly depressed, heel of the butt on a line with the top of the shoulder. (Fig. 79.)

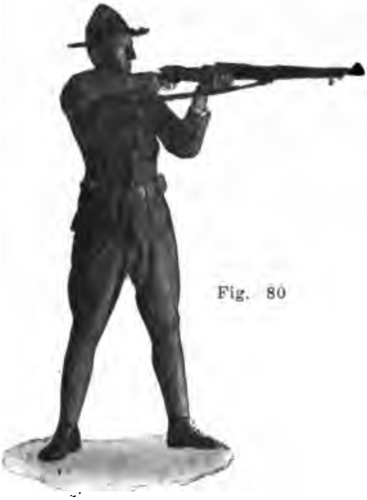


Fig. 80

(Two.) Bring the piece smartly against the hollow of the shoulder, without permitting the shoulder to give way, and press the rifle against it, mainly with the right hand, only slightly with the left, the forefinger of the right hand resting lightly against the trigger, the rifle inclined neither to the right nor left.

(Three.) Resume the position of ready. (Fig. 81.)

Remarks. The instructor should especially notice the position of each soldier in this exercise, endeavoring to give to each man an easy and natural position. He should see that the men avoid drawing in the stomach, raising the breast, or bending the small of the back. The butt of the piece must be pressed firmly, but not too tightly, into the hollow of the shoulder and not against the muscles of the upper arm. If held too tightly, the pulsations of the body will be communicated to the piece; if too loosely, the recoil will bruise the shoulder. If only the heel or toe touches the hollow of the shoulder, the recoil may throw the muzzle down or up, affecting the position of the hit. While both arms are used to press the piece to the shoulder, the left arm should be used to direct the piece and the right forefinger must be left free to squeeze the trigger.

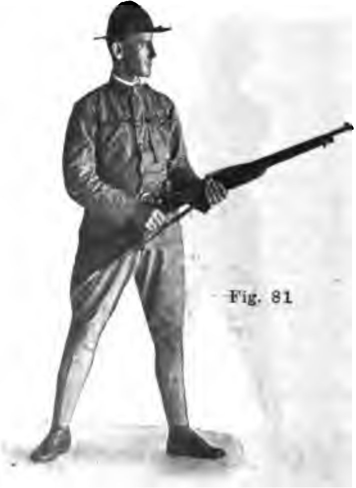


Fig. 81

Aiming Exercise

314. The instructor will first direct the sights to be adjusted for the lowest elevation and subsequently for the different longer ranges.

The instructor commands: 1. **Aiming. 2. EXERCISE.**

At the last command execute the first and second motion of the position exercise.

(Two.) Bend the head a little to the right, the cheek resting against the stock, the left eye closed, the right eye looking through the notch of the rear sight at a point slightly below the mark. (Fig. 82.)

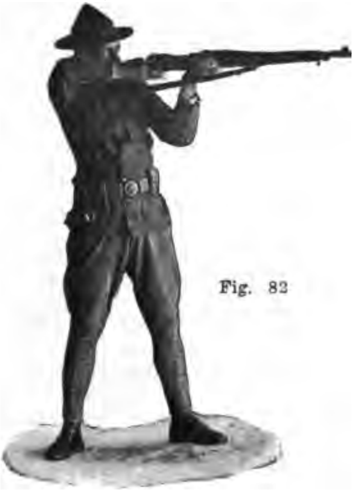


Fig. 82

(Three.) Draw a moderately long breath, let a portion of it escape, then, with the lungs in a state of rest, slowly raise the rifle with the left hand, being careful not to incline the sight to either side, until the line of sight is directly on the mark; hold the rifle steadily directed on the mark for a moment; then, without command and just before the power to hold the rifle steadily is lost, drop the rifle to the position of "Ready" and resume the breathing.

Remarks. Some riflemen prefer to extend the left arm. Such position gives greater control over the rifle when firing in a strong wind or at moving objects. It also possesses advantages when a rapid as well as accurate delivery of fire is desired. Whatever the position whether standing, kneeling, sitting, or prone, the piece should rest on the palm of the left hand, never on the tips of the fingers, and should be firmly grasped by all the fingers and the thumb.

The eye may be brought to the line of sight either by lowering the head or by raising the shoulder; it is best to combine somewhat these methods; the shoulder to be well raised by raising the right elbow and holding it well to the front and at right angles to the body.

If the shoulder is not raised, it will be necessary for the soldier to lower the head to the front in order to bring the eye into the line of sight. Lowering the head too far to the front brings it near the right hand, which grasps the stock. When the piece is discharged, this hand is carried by the recoil to the rear and, when the head is in this position, may strike against the nose or mouth. This often happens in practice, and as a result of this blow often repeated many men become gun-shy, or flinch, or close their eyes at the moment of firing. Much bad shooting, ascribed to other causes, is really due to this fault. Raising the right elbow at right angles to the body elevates the right shoulder, and lifts the piece so that it is no longer necessary to incline the head materially to the front in order to look along the sights.

As the length of the soldier's neck determines greatly the exact method of taking the proper position, the instructor will be careful to see that the position is taken without restraint.

Always be sure to hold the thumb along the small of the stock, as shown in Figs. 88-93; for, if the face is struck the thumb is the usual offender.

As changes in the elevation of the rear sight will necessitate a corresponding change in the position of the soldier's head when aiming, the exercise should not be held with the sight adjusted for the longer ranges until the men have been practiced with the sights as the latter would generally be employed for offhand firing.

The soldier must be cautioned that while raising the line of sight to the mark he must fix his eyes on the mark and not on the front sight; the latter can then be readily brought into the line joining the rear-sight notch and mark. If this plan be not followed, when firing is held on the range at long distances the mark will generally appear blurred and indistinct. The front sight will always be plainly seen, even though the eye is not directed particularly upon it.

The rifle must be raised slowly, without jerk, and its motion stopped gradually. In retaining if directed at the mark, care must be taken not to continue the aim after steadiness is lost; this period will probably be found to be short at first, but will quickly lengthen with practice. No effort should be made to prolong it beyond the time that breathing can be easily restrained. Each soldier will determine for himself the proper time for discontinuing the aim.

The men must be cautioned not to hold the breath too long, as a trembling of the body will result in many cases.

Some riflemen prefer, in aiming, to keep both eyes open but, unless the habit is fixed, the soldier should be instructed to close the left eye.

Trigger-Squeeze Exercise

315. The instructor commands: 1. **Trigger squeeze.** 2. **EXERCISE.** At the command **Exercise**, the soldier executes the first motion of the aiming exercise.

(Two.) The second motion of the aiming exercise.

(Three.) Draw a moderately long breath, let a portion of it escape, hold the breath and slowly raise the rifle with the left hand until the line of sight is on the mark, being careful not to incline the sights to either side. Take up the trigger slack, and then contract the trigger finger gradually, contracting all the muscles of the whole hand, slowly and steadily increasing the pressure on the trigger, while the aim is being perfected; continue the gradual increase of pressure so that when the aim has become exact the additional pressure required to release the point of the sear can be given almost insensibly and without causing any deflection of the rifle. Continue the aim a moment after the release of the firing pin, observe if any change has been made in the direction of the line of sight, and then resume the position of "Ready," cocking the piece by raising and lowering the bolt handle.

REMARKS. Poor shooting is often the result of lack of proper coordination of holding the breath, the maximum steadiness of aim, and the squeeze of the trigger. By frequent practice in this exercise, each man may come to know the exact instant his firing pin will be released. He must be taught to hold the breath, bring the sights to bear upon the mark, and squeeze the trigger all at the same time.

THE TRIGGER SQUEEZE. The trigger should be *squeezed,* not pulled, *the hand being closed upon itself as a sponge is squeezed,* the forefinger sharing in this movement, *remembering that the trigger slack must always be taken up before you begin to squeeze.* The forefinger should be placed as far

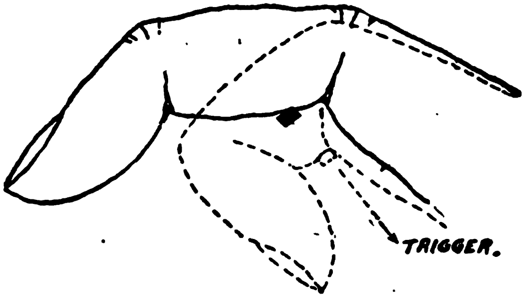


Fig. 83

around the trigger as to *press* it with the second joint. By practice the soldier becomes familiar with the trigger *squeeze* of his rifle, and knowing this, he is able to judge at any time within limits, what additional *pressure* is required for its discharge. By constant repetition of this exercise he should be able finally to *squeeze* the trigger to a certain point beyond which the slightest movement will release the sear. Having *squeezed* the trigger to this point, the aim is corrected and, when true, the additional pressure is applied and the discharge follows.

Rapid-Fire Exercise

316. **Object.** The object of this exercise is to teach the soldier to aim quickly and at the same time accurately in all the positions he will be called upon to assume in range practice.

The instructor commands: 1. **Rapid-fire exercise.** 2. **COMMENCE FIRING.** At the first command the first and second motions of the trigger-squeeze exercise are performed. At the second command, the soldier performs the third motion of the trigger-squeeze exercise, squeezing the trigger without disturbing the aim or the position of the piece, but at the same time without undue deliberation. He then, without removing the rifle from the shoulder, holding the piece in position with the left hand, grasps the handle of the bolt with the right hand, *turns both hands toward each other*, rapidly draws back the bolt, closes the chamber, aims and again squeezes the trigger. This movement is repeated until the trigger has been squeezed five times, when, without command, the piece is brought back to the position of "Ready."

When the soldier has acquired some facility in this exercise, he will be required to repeat the movement ten times, and finally, by using dummy cartridges, he may, by degrees, gain the necessary quickness and dexterity for the execution of the rapid fire required in range firing.

Methods. The methods of taking position, of aiming, and of squeezing the trigger, taught in the preceding exercises, should be carried out in the rapid-fire exercise, with due attention to all details taught therein; the details being carried out as prescribed except that greater promptness is necessary. In order that any tendency on the part of the recruit to slight the movements of aiming and of trigger squeeze shall be avoided, the rapid-fire exercise will not be taught until the recruit is thoroughly drilled and familiar with the preceding exercises. The recruit will be instructed that with practice in this class of fire the trigger can be squeezed promptly without deranging the piece.

REPETITION. If the recruit seems to execute the exercise hurriedly or carelessly, the instructor will require him to repeat it at a slower rate.

MANIPULATION OF THE BREECH MECHANISM. To hold the piece to the shoulder and, at the same time, manipulate the breech mechanism with the proper facility, are learned only after much practice. Some riflemen, especially men who shoot from the left shoulder, find it easier, in rapid firing, to drop the piece to the position of load after each shot. While at first trial this method may seem easier, it is believed that, with practice, the advantage of the former method will be apparent.

LESSON 9

POSITION AND AIMING DRILL, KNEELING

317. These exercises will be repeated in the kneeling position by causing the squad to kneel by the commands prescribed in the Drill Regulations. The exercises will be executed as prescribed for standing, except that at the command "Two" in the position exercise, the soldier will rest the left elbow on the left knee, the point of the elbow in front of the kneecap. The pasters for the kneeling exercise should be at 2½ feet from the floor or ground.

Remarks. Frequent rests will be given during practice in these exercises kneeling, as the position, if long continued, becomes constrained and fatigues the soldier unnecessarily.

In raising the rifle to the mark in the second and third exercises, the position of the left hand should not be changed, but the left forearm should be brought toward the body and at the same time the body bent slightly to the rear.

When aiming kneeling there is, from the nature of the position, a tendency to press the butt of the rifle against the upper arm instead of against the hollow of the shoulder; this will necessitate inclining the head considerably to the right to get the line of sight, and by bringing the rifle so far to the rear will, if the thumb is placed across the stock, cause it to give by the recoil a blow upon the nose or mouth.

These difficulties may be avoided by advancing the right elbow well to the front, at the same time raising it so that the arm is about parallel with the ground. The hollow of the shoulder will then be the natural place for the rifle butt, and the right thumb will be brought too far from the face to strike it in the recoil.

Some riflemen prefer, by bending the ankle, to rest the instep flat on the ground, the weight of the body coming more on the upper part of the heel; this obviates any tendency of the right knee to slip; or, by resting the right side of the foot on the ground, toe pointing to the front, to bring the weight of the body on the left side of the foot. These positions are authorized.

Choice of Position. In firing kneeling, the steadiness obtained depends greatly upon the position adopted. The peculiarities of conformation of the individual soldier exert, when firing kneeling, a greater influence than when firing either standing, sitting, or prone; the instructor should, therefore, carefully endeavor, noticing the build of each soldier, to place him in the position for which he is best adapted and which will exert the least tension or strain upon the muscles and nerves. It should be remembered, however, that without the rest of the left elbow on the knee this position possesses no advantage of steadiness over the standing position.

KNEELING POSITION; WHEN TAKEN. The kneeling position can be taken more quickly than either the sitting or the prone position. It is, therefore, the position naturally assumed when a soldier, who is standing or advancing, has to make a quick shot at a moving or disappearing object and desires more steadiness than can be obtained standing.

Position and Aiming Drill, Sitting Down

318. In many cases the men, while able to kneel and hold the piece moderately steady, can obtain in a sitting position much better results. All should, therefore, be instructed in aiming sitting down as well as kneeling.

To practice the soldier in the preceding exercises in a sitting position, the squad being formed in a single rank, with an interval of one pace between files, the rifle should first be brought to "Order arms"; the instructor then commands: *Sit down.*

At this command make a half face to the right and, assisted by the left hand on the ground, sit down, facing slightly to the right, the left leg directed toward the front, right leg inclined toward the right, both heels, but not necessarily the bottoms of the feet, on the ground, the right knee slightly higher than the left; body erect and carried naturally from the hips; at the same time drop the muzzle of the piece to the front, and to the position of the first motion of load, right hand upon the thigh, just in front of the body, the left hand slightly above, but not resting upon, the left leg.

The exercise will be executed as heretofore prescribed, except that at the command "Two" (position exercise) the soldier will rest the left elbow on the left knee, the point of the elbow in front of the kneecap, and the right elbow against the left or inside of the right knee, at the same time inclining the body from the hips slightly forward.

For the aiming and trigger-squeeze exercises the pasters, used as aiming points, will be 2½ feet from the floor or the ground.

To afford the men rest or on the completion of the kneeling or sitting down exercises the instructor will command *Rise*, when the men rise, face to the front, and resume the "Order arms."

REMARKS. If the preceding position is carefully practiced, steadiness is quickly attained. The right leg should not be carried so far to the right as not to afford a good support or brace for the right elbow.

This position may be modified, but, in general, not without impairing the steadiness of the man, by crossing the legs at the ankle, the outside of each foot resting upon the ground, body more erect, and the knees slightly more raised than in the previous position.

Position and Aiming Drill, Prone

319. From the nature of the position it is not practicable to execute these exercises according to the method followed when standing or kneeling. Instruction will, however, always be given with reference to the position, to the manner of assuming it, and to aiming and squeezing the trigger.

For this purpose the squad being formed as specified above, in the position and aiming drill, sitting down (the black pasters therein mentioned being about 12 inches from the ground), the squad will be brought to "Order arms."

Then (the squad either standing or kneeling), the instructor commands: *Lie down*, which will be executed as prescribed in the Drill Regulations; the legs may be spread apart and the toes turned out if found to give a steadier position.

After the squad has taken the position as prescribed above, the legs should be inclined well to the left, and either crossed or separated as the soldier prefers or as his particular conformation appears to render most desirable, and the body at the same time inclined slightly to the right.

With care and practice the soldier may acquire an easy position which he is able to assume with great facility.

Being at "Ready," the instructor then commands: 1. **Trigger squeeze.** 2. **EXERCISE.**

At the latter command carry the left elbow to the front and slightly to the right, the left hand under the barrel at the balance, weight of the body mainly supported by the left elbow, the right resting lightly on the floor or ground.

(Two.) Slide the rifle with the right hand through the left hand to the front until the left hand is a little in front of the trigger guard; at the same time raise the rifle with both hands and press it against the hollow of the shoulder.

(Three.) Direct the rifle upon the mark and carry out the further details of aiming and squeezing the trigger as prescribed in the trigger-squeeze exercise.

Then resume the position, lying down.

As soon as the men have acquired with accuracy the details of the position, they will be practiced, without the numbers, in aiming and squeezing the trigger at will; after which the rapid-fire exercise in the prone position will be practiced, the necessary skill and dexterity being acquired by degrees.

To afford the men rest, or on completion of the exercise, the instructor will command: *Rise*, which is executed as prescribed in the Drill Regulations.

REMARKS. The preceding position for firing lying down possesses in a greater degree than any other position the merit of adaptability to the configuration of the ground; it enables the soldier to deliver fire over low parapets or improvised shelters, thus making the best use of cover. The importance of training the soldier in firing from the other positions should not, however, be lost sight of, since from the prone position it will frequently be impossible to see the objective.

Back positions are not authorized.

In the prone position, when aiming, the left elbow should be well under the barrel, the other elbow somewhat to the right, but not so far as to induce any tendency to slip on the floor or ground.

The greater changes in elevation required in first directing the rifle on the object should be given by altering the position of the left hand under the barrel, the slighter changes only by advancing or withdrawing the shoulder.

As the body does not yield to the recoil, as when firing standing or kneeling, the force of recoil, if the rifle is not properly held, may severely bruise the soldier. It is one of the objects of this exercise to so teach him that this will be prevented by assuming a correct position. Care must be exercised that the butt is not brought against the collar bone. By moving the shoulder slightly to the front or rear, and by moving the right elbow from the body or toward it, each soldier may determine the position in which the shoulder gives to the butt of the rifle the easiest rest. This will probably be the one in which the force of the recoil will be least felt.

The soldier should persist in this exercise until he obtains a position in which he feels no constraint, which will not subject him to bruises from the recoil, and from which the mark appears plainly through the sights. Having secured such a position, he must not change it when firing, as a variation in the points of support of the rifle, the distance of the eye from the rear sight, or the tension of the hold has a decided effect, especially at the longer ranges, upon the location of the point struck.

IMPORTANT. The soldier should be encouraged to go through these exercises frequently at other than drill hours, care being taken that, in the aiming and trigger-squeeze exercises, he always has some definite object for a mark.

320. Use of Sling. After the soldier has been drilled in the proper standing, kneeling, sitting, and prone positions in the foregoing exercises, the use of the sling will be taught. Adjustments and their advantages will be taught with the idea of noninterference with quickness and freedom of action. The trigger-squeeze exercises will then be continued in the different positions, using the sling.

DESCRIPTION AND ADJUSTMENT. **The sling is made up of four parts:** the long strap, A, forming the arm loop; the short strap, B; and the two keepers, C and D. At one end of each of the straps there is a metal claw used for adjusting the straps. At the other end of the short strap there is a metal loop through which the longer strap is passed, thus connecting the two traps.

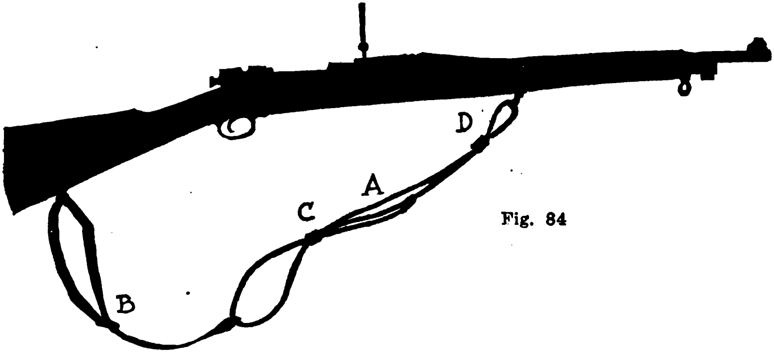


Fig. 84

To adjust the sling for firing, the claw of the short strap is disengaged and reëngaged in the proper holes of the short strap, such adjustment as may be necessary being also made in the long strap (the arm loop).

WHAT THE SLING DOES. It does two things: (1) It steadies the rifle, and (2) helps to take up the recoil—that is, to reduce the "kick."

Its Use. There are a number of different methods of using the sling. Experiment with different ones until you find and decide upon the method best suited to you.

The sling should be used in all firing—combat practice as well as at target practice.

Always adjust the sling so that it will be tight.

Have the arm loop no longer than is necessary to reach the middle of the small of the stock. When on the arm, have the lower end of the arm loop well up near the arm pit, with the keeper well pressed down so as to hold the loop fast.

Note the proper adjustments of the sling for the different firing positions,—that is, standing, sitting, kneeling, and prone, and mark the adjustments on the inside of the arm loop, ''St'' (standing), ''Si'' (sitting), ''K'' (kneeling), and ''P'' (prone).

It is sometimes advisable to sew a piece of rope to your shirt sleeve to keep the sling from slipping down.

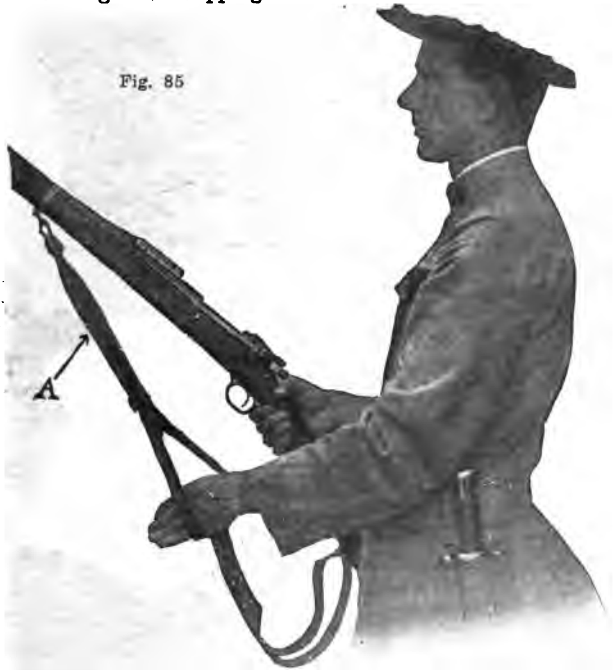


Fig. 85

321. To put on the sling. 1. Put your left hand in the loop, twisting the sling to the left, A, Fig. 85, and holding the rifle with the right hand as shown in the figure. Twisting the sling to the left causes a flat surface instead of the cutting edge of the sling to rest against the wrist.

321 (contd.)

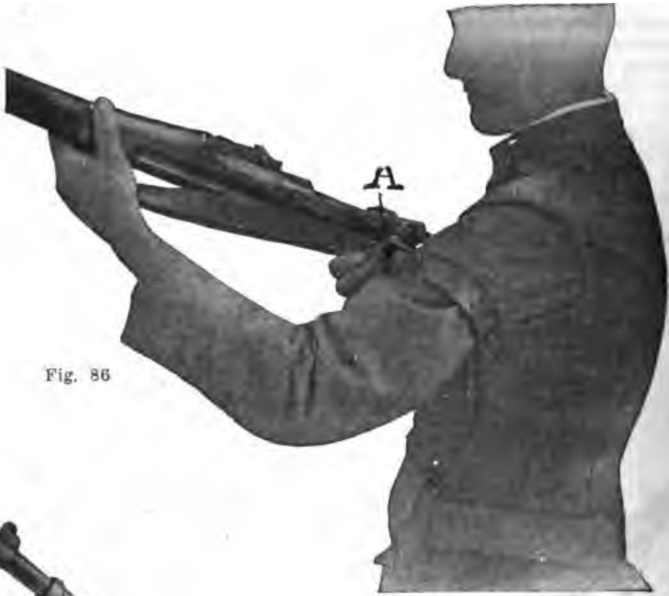


Fig. 86

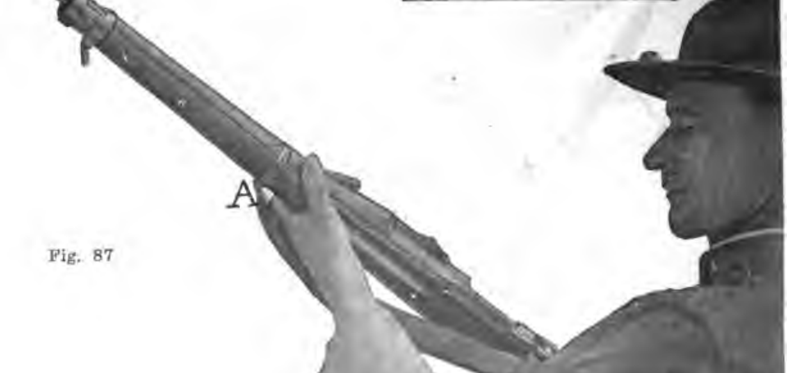


Fig. 87

321 (contd.)

2. **Extend the arm on through the loop, (Fig. 86), bringing the loop well up near the pit of the arm, grasping the piece with the left hand, and pressing down keeper, A.**

3. **Place left hand between the sling and piece, (Fig. 87), the hand being pressed well forward toward the upper sling swivel, A. Notice how the back of the hand is resting against the flat of the sling.**

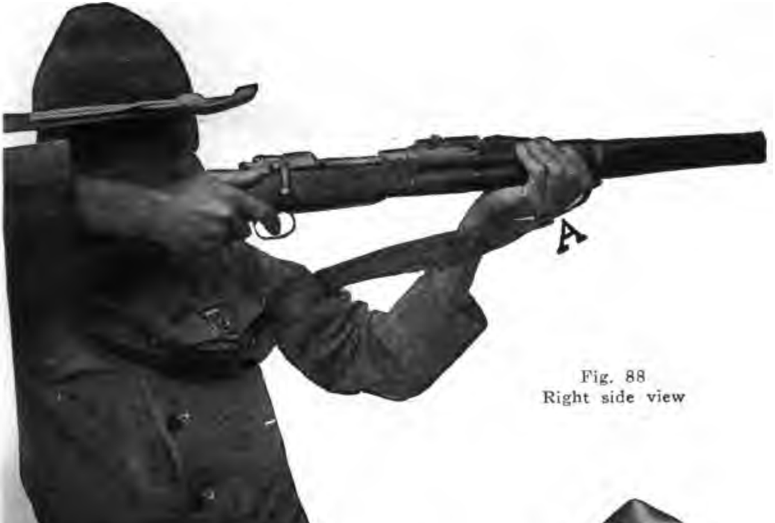


Fig. 88
Right side view

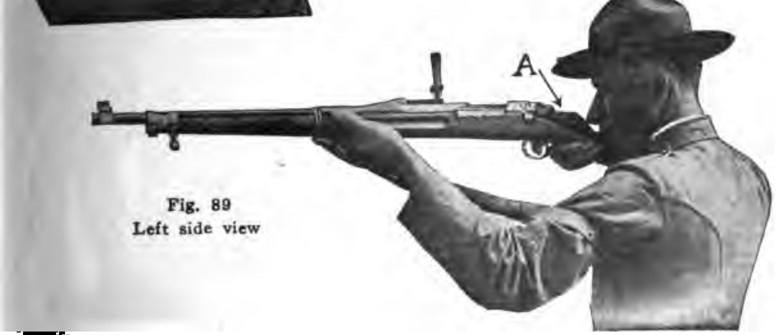


Fig. 89
Left side view

[illegible] Come to the position of aim, Fig. 88. Pressure is applied to [illegible] sling by pressing forward the left hand, and holding the rifle to the shoulder with the right hand. Remember that whatever pressure you apply must be the same for each shot.

Notice (Figs. 88 and 89) how well forward the left hand is, and how the flat of the sling is resting against the wrist and back of hand.

See how the short strap, C, (Fig. 88), of the sling is correctly loose. The thumb should be held along the stock as shown (A) in Fig. 89.

322. Holding of piece and position of body. While, because of differences in contour of body, it is not possible for all men to hold the piece the same way and to assume the same positions of the body, there are certain basic principles in both the holding of the piece and the position of the body that must be observed to get the best results in shooting. For example, among which are: holding the left arm well under the piece in all firing positions except sitting; holding the left hand as near to the upper sling swivel as possible; placing cheek against stock and eye as close to cocking piece as possible; sling tight; point of elbows in kneeling and sitting positions to be slightly in front of knees.

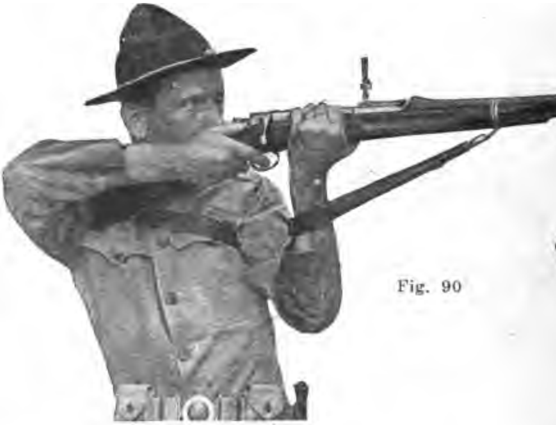
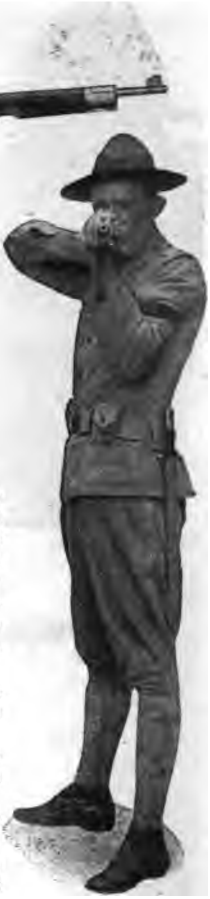


Fig. 90

Side view



Front view

Without violating any of these or other principles take hold of the piece and assume the position of the body that is most comfortable to you.

Fig. 90 and the following illustrations show various methods of using the sling, holding the piece and taking position.

Study them carefully, and try them out, for they are the ones that are used by our best shots.

323. **Standing position.** Fig. 90. Notice position of feet; body well balanced; right elbow raised; left elbow pressed close to body; head inclined well to right; sling passing under left arm at arm pit and very tight; tightness of sling pressing against left wrist; body leaning back slightly; right thumb along stock.

324. Kneeling positions. 1. Fig. 91. Notice right knee pointing to right flank; left elbow resting on left knee, point of elbow well over knee; right heel supporting body; body bent forward; thumb along stock; cheek against stock; sling as in Fig. 90.

2. Fig. 92. Notice right foot on which soldier is sitting; note position of left elbow; left hand well forward near upper sling swivel; right thumb along stock; body bent forward.

This position is excellent, if your build will enable you to take it.

325. Sitting positions. 1. Fig. 93. Note how head is bent well forward and right thumb held along stock; left hand well forward; heels dug into ground; body bent well forward; arm through loop of sling; note elbows.

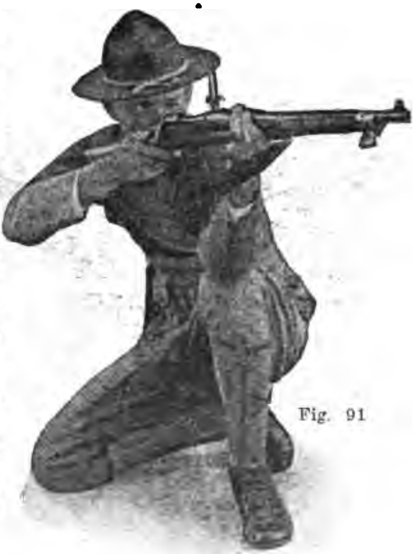


Fig. 91

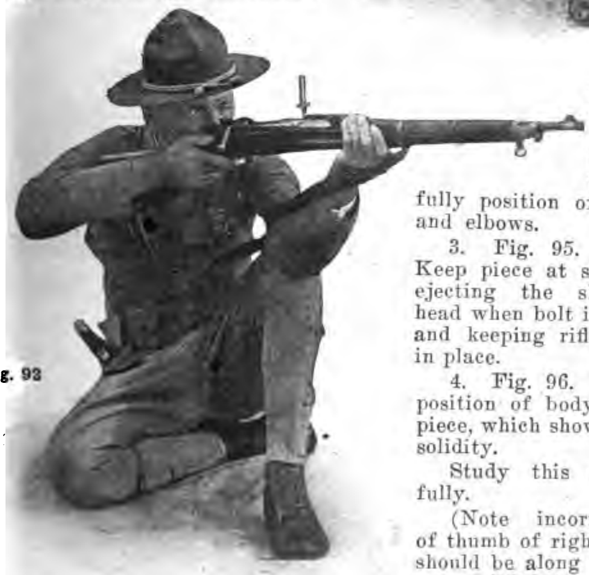


Fig. 93

2. Fig. 94. Same as Fig. 93, except position of feet and legs. Study carefully position of head, hands and elbows.

3. Fig. 95. **Rapid Fire.** Keep piece at shoulder while ejecting the shells, raising head when bolt is pulled back, and keeping rifle and elbows in place.

4. Fig. 96. Note general position of body and grip of piece, which show firmness and solidity.

Study this picture carefully.

(Note incorrect position of thumb of right hand, which should be along stock and not across it.)

325 (contd.)

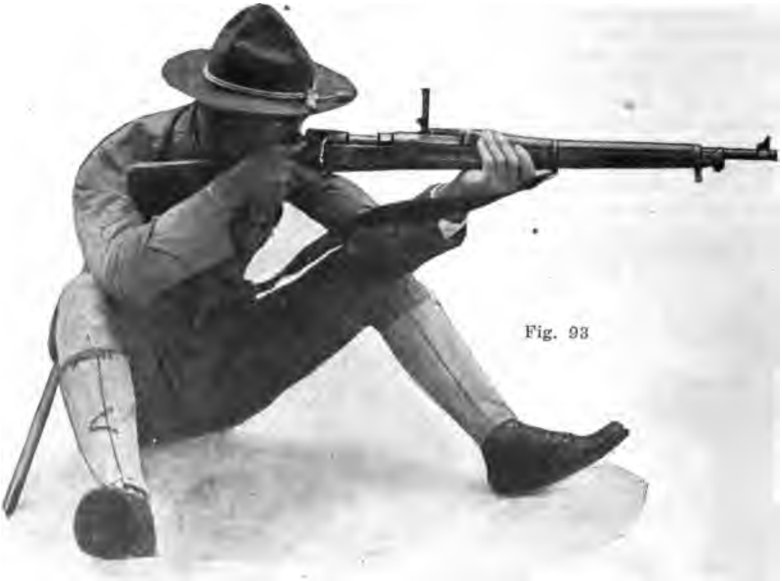


Fig. 93

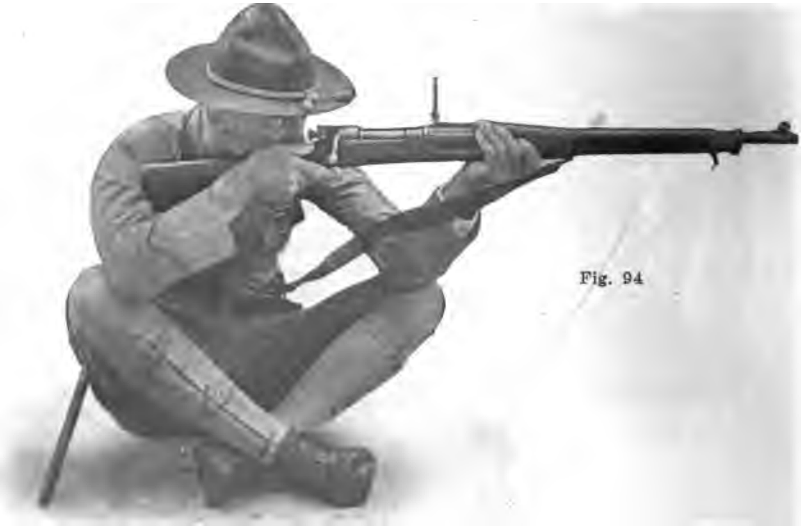


Fig. 94

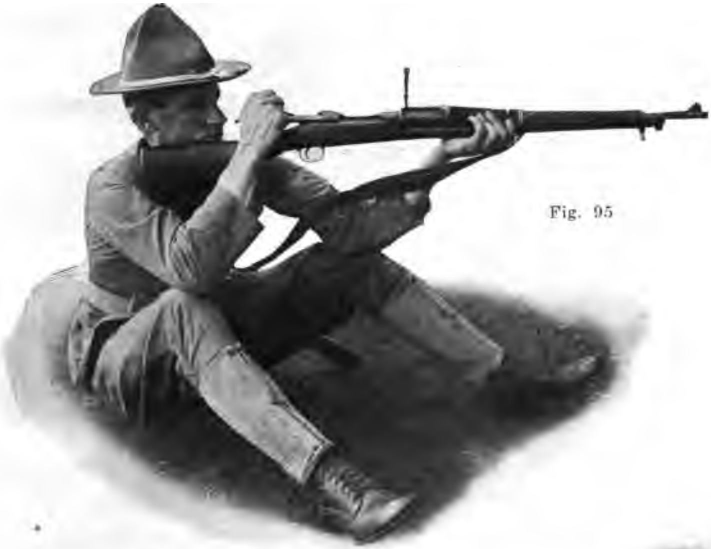


Fig. 95

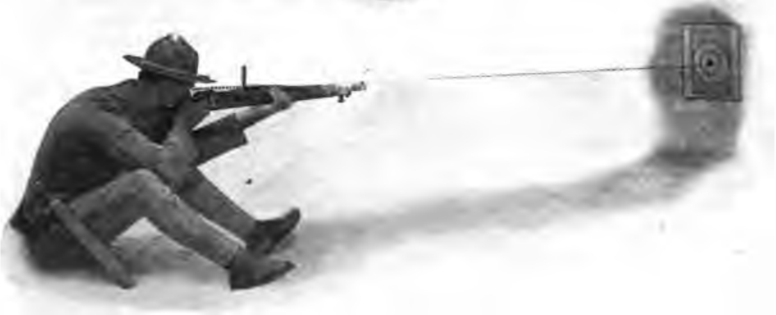


Fig. 96

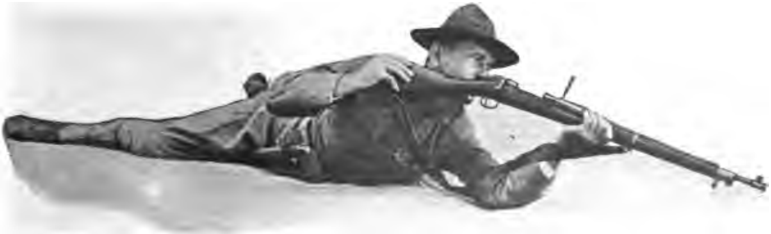
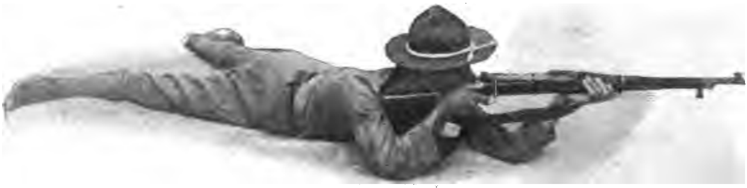
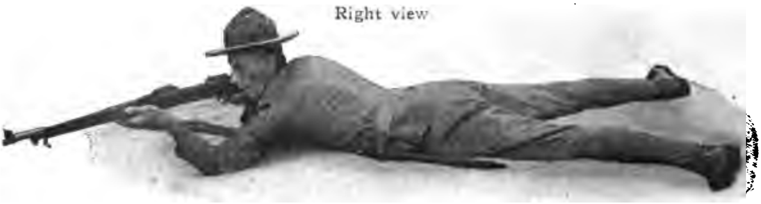


Fig. 97



Right view



Left view

Fig. 98

326. PRONE POSITIONS. 1. **Fig. 97. Placing piece to shoulder. Left hand well forward, piece resting on flat of hand and not on fingers; front of body raised and turned to left; left elbow well under rifle; butt of** stock grasped in **right hand** and placed in hollow of shoulder.

2. Fig. 98. Note excellent position of left hand, and also how left elbow is well under rifle.

Note excellent position of legs.

3. Fig. 99. Note angle of rifle with body,—rifle well inclined to left.

Note also good position of legs and feet.

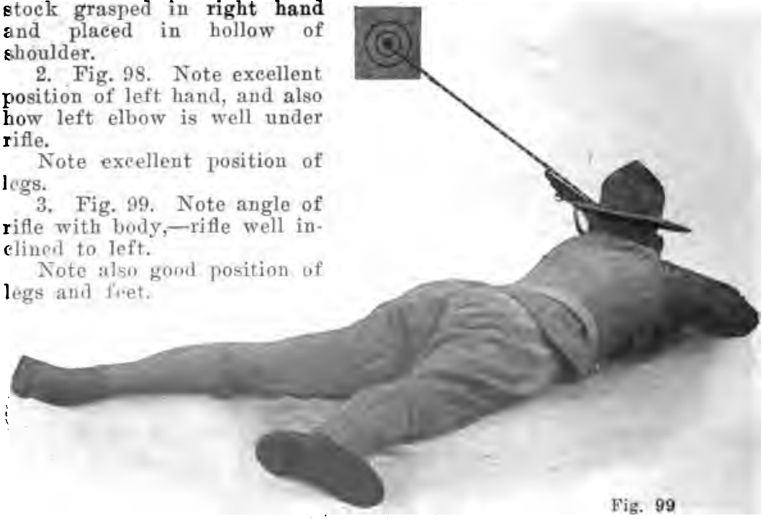


Fig. 99

4. Fig. 100. **Rapid Fire.** Keep piece at shoulder while ejecting the shells in rapid fire.

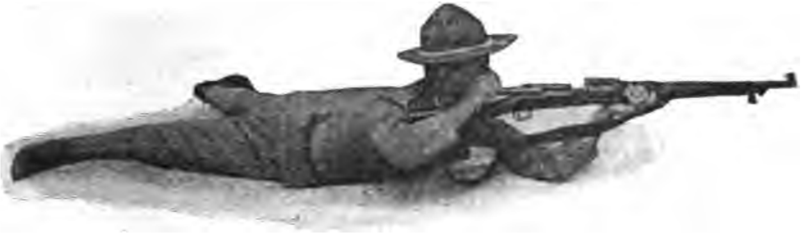


Fig. 100

327. **Sandbag rest.** In the sandbag rest some men rest the piece directly on the sandbag as shown in Fig. 101.

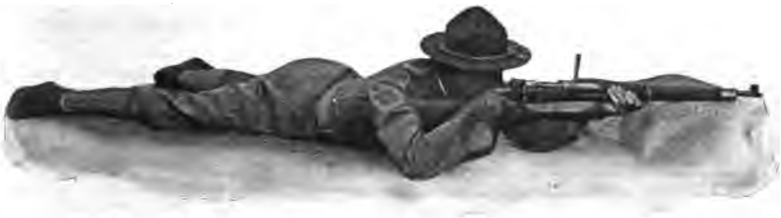


Fig. 101

Difficulty of this position of piece on sandbag is in getting uniformity. The positions of feet, hands, legs, and head are very good. Study them carefully.

Others rest the piece on the hand, which rests on the sandbag, as in Fig. 102.

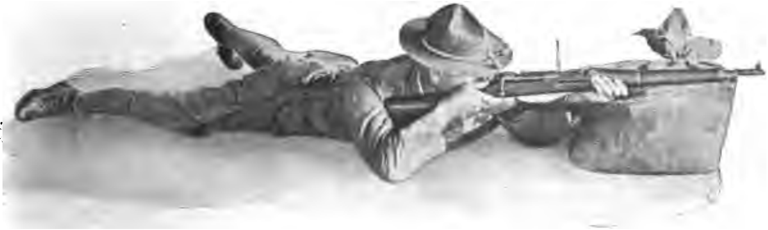


Fig. 102

Advantage of this position of piece is that it is suited to giving uniformity of hold. Note incorrect position of left foot, which should be same as right foot.

The secret of success in shooting with the sandbag rests is uniform holding,—that is, holding the piece the same way each time,—and the position with the hand on the bag, as in Fig. 102, is the one best suited to getting this result.

LESSON 10

DEFLECTION AND ELEVATION CORRECTION DRILLS

(Sight-Setting Drills)

328. Sight Correction. You may find when firing at a target that the first shot has missed the bull's eye or figure. Now, one of two things may be done in order to cause the second shot to hit the bull's eye or figure: (1) The point of aim may be changed, or (2) the sights may be moved and the same point as before aimed at.

In order to do accurate shooting it is necessary to have a well-defined mark at which to aim; consequently, except for very slight corrections, the method of moving the sights, involving changes in elevation and windage, is the one to be used.

329. Exercises. In order to give the soldier practice in making corrections in elevation and deflection (windage),—that is, in sight-setting,—proceed as follows:

Take an "A" target and rule it off with red vertical lines to represent range and black or blue horizontal lines to represent windage deviations, as in Fig. 103. Tell the men to set their sights (either peep or open) for 200 yards, no windage. Examine the sights (assisted by the lieutenants, noncommissioned officers and expert riflemen).

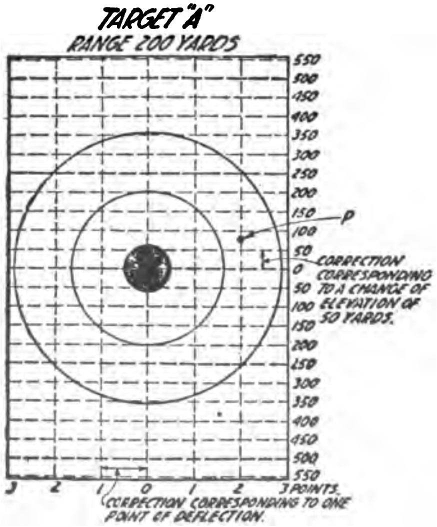

TARGET "A"
RANGE 200 YARDS
550
500
450
400
350
300
250
200
150
100
50
0
50
100
150
200
250
300
350
400
450
500
550
P
E
CORRECTION CORRESPONDING TO A CHANGE OF ELEVATION OF 50 YARDS.
3
2
1
0
1
2
3 POINTS
CORRECTION CORRESPONDING TO ONE POINT OF DEFLECTION.

Fig. 103

Then say, for example, "You have fired a shot at 200 yards with your sights set as you now have them. The shot was marked here (pointing to 'P,' Fig. 103. Change your sights so as to move the next shot into the bull's eye,—considering that you take the same hold as you did the last time.''

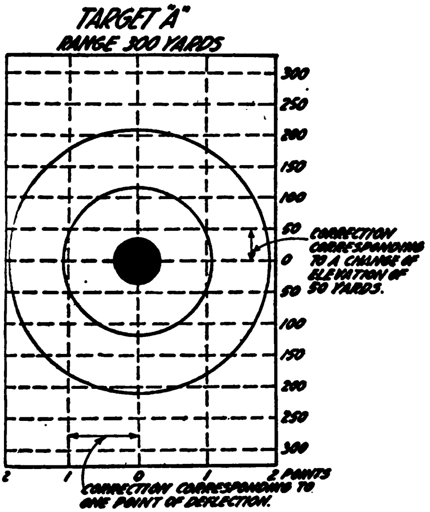

TARGET "A"
RANGE 300 YARDS
300
250
200
150
100
50
0
50
100
150
200
250
300
CORRECTION CORRESPONDING TO A CHANGE OF ELEVATION OF 50 YARDS.
2
1
0
1
2 POINTS
CORRECTION CORRESPONDING TO ONE POINT OF DEFLECTION.

Fig. 104

(Note. In this case the sight should be lowered 75 yards and 2 points of left windage should be taken.)

Repeat with different positions for ''P'' until the men all understand the method and the reasons. Do same for 300 yards, 500 yards, and 600 yards. See Figs. 104, 105, and 106.

Explain that in firing no change in sights should be made until the man is sure that his hold was good, and then change without hesitancy.

The correct use of sights and their proper adjustment can thus be taught without firing a shot. This exercise will save much time and work on the range.

330. Elevation. As previously explained, raising the rear sight increases the range of the bullet and lowering it decreases the range.

The amount of change which a given amount of elevation will cause in the point struck varies with the range and with the rifle and with the ammunition used.

For example, generally and approximately, in order, at a range of 500 yards, to change the point struck 1 foot, the rear sight must be changed 48 yards, while to change the point struck 1 foot at 1000 yards it must be changed 12 yards. That is to say, if you fired a shot at 300 yards, and then with the same aim, hold and other conditions as before, you *raised* your rear sight 48 yards, the next shot would strike the target 1 foot *above* the first one, and if you *lowered* the rear sight 48 yards, the bullet would then strike the target 1 foot

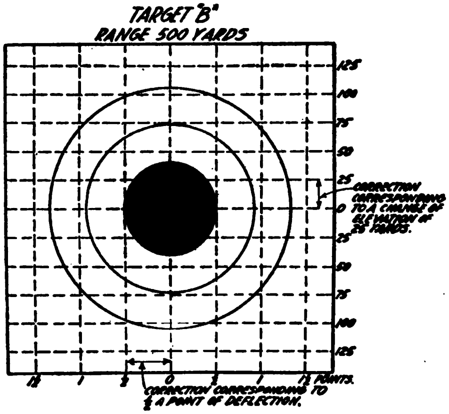

TARGET "B"
RANGE 500 YARDS
125
100
75
50
25
0
25
50
75
100
125
CORRECTION CORRESPONDING TO A CHANGE OF ELEVATION OF 25 YARDS.
1½
1
½
0
½
1
1½ POINTS
CORRECTION CORRESPONDING TO ½ A POINT OF DEFLECTION.

Fig. 105

below the first one. If firing at 1000 yards, *raising* the rear sight 12 yards would cause the bullet to strike the target 1 foot *higher* and *lowering* the rear sight 12 yards would cause it to strike 1 foot *lower.*

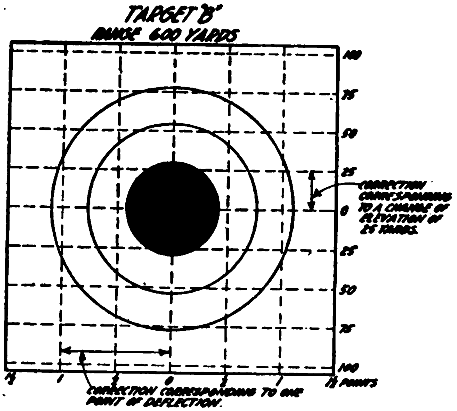

TARGET "B"
RANGE 600 YARDS
100
75
50
25
0
25
50
75
100
CORRECTION CORRESPONDING TO A CHANGE OF ELEVATION OF 25 YARDS.
1½
1
½
0
½
1
1½ POINTS
CORRECTION CORRESPONDING TO ONE POINT OF DEFLECTION.

Fig. 106

The score-books issued by the Ordnance Department contain elevation charts and all you have to do is to consult the chart of your score-book in order to get the amount of elevation necessary at any particular range in order to raise or lower your shots any desired distance.

331. Deflection (windage). Corrections in the deflection (side movement) of the bullet are made by means of the windage screw that moves the movable base, each division of the graduations on the rear end of the movable base being called a "point of windage."

One point of windage moves the point struck 4 inches for each 100 yards of range.

That is to say, at 100 yards, 1 point of windage moves the point struck 4 inches; at 200 yards, 8 inches (2 x 4) at 300 yards, 12 inches (3 x 4), etc.

Consequently, if at 100 yards the wind were carrying your bullets 8 inches to the side, you would take two points of windage to get on the bull's eye, and if the wind were carrying your bullets 20 inches to the side, you would take 5 points of windage, irrespective of the rate at which the wind was blowing.

Again, if at 200 yards the wind were carrying your bullets 8 inches to the side, you would take 1 point of windage, and if it were carrying your bullets 20 inches to the side, you would take 2½ points, irrespective of the rate at which the wind was blowing.

In using the wind gauge remember *windage is always taken in the direction from which the wind is coming (into the wind) and the bullet moves in the same direction that the rear sight moves,—that is, if the wind is coming from the right, you take right windage and the bullet will strike to the right. Likewise if you move the rear sight to the left (take left windage), the bullet will strike to the left.*

332. Designation of winds. Winds are designated as "12 o'clock," "1 o'clock," "2 o'clock," etc., winds, depending on the direction *from* which they come.

Imagine the firing point to be in the middle of the face of a clock and the target to be at 12 o'clock; 3 o'clock will be on your right, 9 o'clock on your left, 6 o'clock in your rear and 12 in your front.

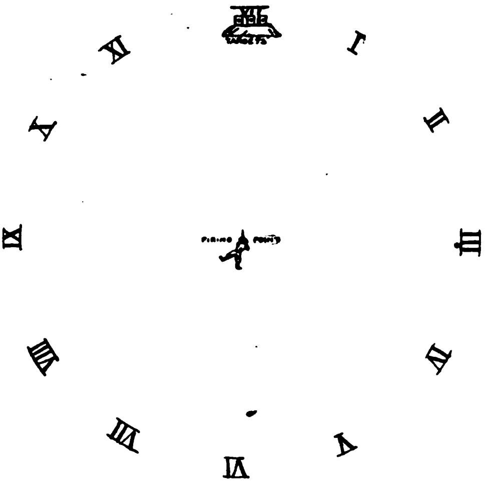


Fig. 107

A wind blowing *from* your right to your left is called a 3 o'clock wind; one blowing *from* your rear is called a 6 o'clock wind; one from your front, 12 o'clock wind, etc.

The score books issued by the Ordnance Department have windage charts that have been carefully worked out and all you have to do is this: Estimate the force of the wind in miles per hour, and determine the direction from which it comes (whether a 9 o'clock wind, a 2 o'clock wind, etc.). Then look at the windage chart and see just how much windage you must take.

The simplest and best rule for the beginner is for him to make his estimate and then ask an experienced shot what windage to use, checking this up with what he found on the windage chart. In this way he soon learns to estimate for himself.

Practice estimating the wind. Ask a man who has been making 5's and 4's what windage *he* used and check up with your own estimate.

You can find out the direction of the wind by watching smoke, grass or the limbs of trees.

Throw up some small straws and watch which way they are blown, or wet your finger and hold it up. The wind cools the side it strikes.

A 12 o'clock wind slows up the bullet and a 6 o'clock wind helps it along,—so, in the first case you would need more elevation and in the second less elevation.

333. Adjusting the sights. Although our rifles are made with the greatest possible care, the graduations on the rear sight will be found correct for but a comparatively few rifles. Some shoot high, others low; some to the right, others to the left, and so on.

Determine what corrections, if any, are necessary for your rifle at the different ranges and record them in your score-book. A rifle that needs no correction is said to "shoot on the mark."

The correction necessary for each particular rifle at any range is found by shooting it a few times at that range, and is constant with the same ammunition and when firing under the same conditions.

334. The zero of the rifle. As previously explained, the twist of the bullet given by the rifling of the barrel causes the bullet to move to right, which movement, called "the drift," is compensated by having the slot in the rear sight for the drift slide, slope to the left. However, in some rifles the compensation is too great and in others it is not enough.

That reading of the wind gauge necessary to overcome the drift of a rifle at a particular range is called the "zero" of that rifle for that range, and all allowances for wind should be calculated from this reading. The "zero" of a rifle is found by shooting it on a perfectly calm day.

335. **Front sight cover.** There is no uniformity of practice in the service regarding the use of the front sight cover in firing,—some use it, while others do not.

The use of the front sight cover possesses no disadvantages, while it does prevent the black from being rubbed off and also lessens the effect of light changes. Because of this and also because the front sight cover would be used habitually in battle, its use is recommended in all firing.

336. **Gallery practice.** After the soldier has been thoroughly instructed in sighting, and in the position, aiming, deflection, and elevation correction drills, he is exercised in firing at short ranges (50 and 75 feet) with the gallery practice rifle (.22 caliber).

Notwithstanding the value of the position and aiming drills, it is impossible to keep up the soldier's interest if these exercises are unduly prolonged. By gallery practice, however, the interest is easily maintained and further progress, especially in teaching the trigger squeeze, is made. Many of the external influences, which on the range affect the firing, being absent, the soldier is not puzzled by results for which, at this stage of his education, he could not account were he advanced to firing with full charges. Furthermore, as there is no recoil to induce nervousness or flinching, the soldier soon finds that he can make good scores, and this success is the surest stimulus to interest.

Not only to the beginner is gallery practice of value; to the good shot it is a means of keeping, to a certain extent, in practice, and practice in shooting, as much as in anything else, is essential. Since it can be carried on throughout the year, gallery practice is of much value in fixing in the men the *habit of aimed fire,* than which nothing in his training is of more importance.

337. **Procedure in rapid fire.** The soldier should be thoroughly drilled in the mechanism of rapid fire, and instructed in the procedure to be followed on the range and in the regulations governing same, which are as follows:

At 200 yards there will be but one man firing at each target. The officer in charge of the line will command "Load." The magazine will be filled, the piece loaded with one cartridge therefrom, and the safety lock turned to "Safe." When all is ready in the pit the targets to be fired upon will be drawn fully down (the rear targets being blank or targets of another class than those being fired upon), and a red flag hoisted at the center target. When the red flag is displayed, the officer in charge of the firing line will command "Ready," when the safety lock will be turned to the ready and the position of "Ready" standing assumed, with the sling, if used, on the arm. The officer in charge of the firing line will then call so that all may hear, "Ready on the right; ready on the left." When the officer in charge calls out "Ready on the right," etc., anyone who is not ready must call out, "Not ready on target ——." If any soldier fails to so call, it will be assumed that he is ready, and if he fails to fire when the target appears he will be given a total miss for that score.

The firing line being ready, the pit is signaled or telephoned, ''Ready on the firing line.'' When this signal is received in the pit, the red flag is waved and lowered and five seconds thereafter the targets appear, remaining in sight one minute and then disappear. The soldier, without coming to the ''Order,'' takes the kneeling or sitting position as soon as any part of the target appears, begins to fire and attempts to fire 10 shots, reloading with a full clip which is taken from the belt, and continues to fire until 10 shots are fired or until the target disappears.

Each unfired cartridge counts a miss.

In case of a defective cartridge or a disabled piece, or when more than 10 hits are made on a target, the practice is repeated.

At 300 yards the procedure is the same, except that the soldier assumes the prone position as soon as any part of the target appears, the time limit being 1 minute and 10 seconds.

At 500 yards the procedure is the same, except that the soldier is in the prone position, with the piece at the shoulder, before the target appears, the time limit being 1 minute and 20 seconds.

At all ranges, in rapid fire, firing is from a full clip, and the second clip must be loaded from the belt. In case a clip jams or breaks, cartridges may be loaded singly.

At the expiration of the time limit, the target is pulled down and marked, all hits being given their proper value. In case of more than 10 hits on a target, the target will not be marked but the firing line will be notified and the firing on that target repeated. In case a soldier fires on the wrong target, only such shots as he may have fired on his own target will be counted on his score. He will be given misses for the remainder of his score.

In firing rapid fire, if more than one target is used, the order of men at the firing point will fire together, one man at each target, all targets being fired upon at one time.

The battle sight is used at all ranges in rapid fire.

338. Estimating distance. Ability to estimate distances correctly is an important part of a soldier's education.

While it is true that fire on the battlefield will usually be by groups and the ranges will be given by officers, the battlefield is reached only after a long series of experiences in scouting, patrolling, and outpost duty, in which the soldier is frequently placed in positions where it is necessary that he shall determine for himself the range to be used in order that his fire may be effective.

There are different methods of estimating the range (for example, by sound, trial shots, range-finding instruments, etc.), but the only ones that the average soldier need know are those of estimating distance by the eye and by trial shots.

To estimate distance by the eye with accuracy, it is necessary to be familiar with the appearance, as to length, of a unit of measure which can be compared mentally with the distance which is to be estimated. The most convenient unit of length is 100 yards. To impress upon the soldier the extent of a stretch of 100 yards two posts 100 yards apart, with short stakes between to mark each 25 yards, should be placed near the barracks, or on the drill ground, and the soldier required to pace off the marked distance several times, counting his steps. He will thus learn how many of his steps make 100 yards and will become familiar with the appearance of the whole distance and of its fractional parts.

Next a distance of more than 100 yards will be shown him and he will be required to compare this distance with the 100-yard unit and to estimate it. Having made his estimate, he will be required to verify its accuracy by pacing the distance.

A few minutes each day should be spent in this practice, the soldier often being required to make his estimate by raising his rear-sight leaf and showing it to the instructor. After the first drills the soldier should be required to pace the distance only when the estimate is unusually inaccurate.

The soldier should be taught that, in judging the distance from the enemy, his estimate may be corrected by a careful observation of the clearness with which details of dress, the movements of limbs or of the files in a line may be seen. In order to derive the benefit of this method, the soldier will be required to observe closely all the details noted above in single men or squads of men posted at varying distances, which will be measured and announced.

Although the standing and kneeling silhouettes used in field practice afford good objects upon which to estimate distances, the instructor should make frequent use of living figures and natural objects, as this is the class of targets from which the soldier will be compelled to estimate his range in active service.

339. **Methods of estimating long distances by the eye.** The following methods are found useful:

(a) The soldier may decide that the object cannot be more than a certain distance away nor less than a certain distance; his estimates must be kept within the closest possible limits and the mean of the two taken as the range.

(b) The soldier selects a point which he considers the middle point of the whole distance, estimates this half distance and doubles it, or he similarly divides the distance into a certain number of lengths which are familiar to him.

(c) The soldier estimates the distance along a parallel line, as a road on one side, having on it well-defined objects.

(d) The soldier takes the mean of several estimates made by different persons. This method is not applicable to instruction.

340. **Appearance of objects: How modified by varying conditions of light; difference of level, etc.** During instruction the men should be taught the effect of varying conditions of light and terrain upon the apparent distance of an object.

OBJECTS SEEM NEARER—

(a) When the object is in a bright light.

(b) When the color of the object contrasts sharply with the color of the background.

(c) When looking over water, snow, or a uniform surface like a wheat field.

(d) When looking from a height downward.

(e) In the clear atmosphere of high altitudes.

OBJECTS SEEM MORE DISTANT—

(a) When looking over a depression in the ground.

(b) When there is a poor light or a fog.

(c) When only a small part of the object can be seen.

(d) When looking from low ground upward toward higher ground.

LESSON 11

341. **The recoil.** The recoil, or the "kick," of the rifle is due to the explosion of the powder. The powder is changed into a gas and this gas needs more room than the cartridge gives it. Something must give way.

The pressure of the powder is equal in every direction. The walls of the chamber prevent motion sideways,—so that all motion is in the direction of the length of the barrel. The force used in sending the bullet forward is exactly the same as that which sends the rifle backwards. The rifle is much heavier than the bullet,—about 425 times as heavy—and moves correspondingly slower. If they were of equal weight, they would move with the same speed.

The rifle, if held loosely, will move against the shoulder quickly and will give a hard blow. If it is pressed firmly against the shoulder it can't get a start and the recoil becomes a push instead of a kick. Therefore, to avoid injury, *hold the piece pressed firmly against the shoulder,* and wear a pad on the shoulder and on the elbow.

342. **Flinching.** Don't flinch. Don't be afraid of your rifle. Flinching is due to fear. Don't be a coward.

KEEP YOUR EYE OPEN WHEN FIRING. This will do more than anything else to prevent flinching. Also, wear a pad on your shoulder and on each elbow; press the butt hard against your shoulder and you cannot be hurt.

Practice "calling your shots,"—that is, announcing where your rifle was aimed at the moment of discharge. You will have to keep your eye open to do this, and it will thereby help you to overcome flinching.

A flincher must cure himself. Try squeezing the trigger very slowly and letting the rifle go off without knowing just when it does. If all else fails, try placing your thumb back of trigger and discharging piece by pinching slowly.

343. **Padding.** Pad the right shoulder and both elbows of your shirt, with what the tailors call "wadding." •Get the padding well up on the shoulder and well out on the arm. Take the prone position and see just exactly where padding is needed.

Have this done before firing your first shot. Padding often saves the beginner from flinching.

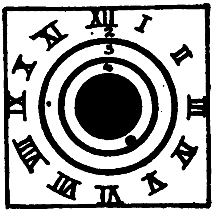


Fig. 108 .

344. **Calling your shots.** Get in the habit of calling your shots,—that is, announcing where your rifle was aimed at the instant it was discharged. If the instructor is present, call your shots so that he can hear you; otherwise call them to yourself either in a low tone or mentally.

Shots are described and called as follows:

Imagine the target to be the face of a clock. If your rifle were aimed at the point ● where you fired, you would call, ''4 at 5 o'clock'' (''4'' meaning the value of the hit, and ''5 o'clock'' indicating its position), or you would say, ''A 4, low and to the right,'' but the clock system is the better.

The coach,—the officer or noncommissioned officer who advises you and who corrects your errors,—wants to hear you call your shots. If, for example, you call a 4 at 6 o'clock and you get a 2 at 9 o'clock, assuming you are calling correctly, he knows that either your sights are improperly set, you are committing some error, or your rifle is a poor one. He lets you shoot again; you call 3 at 3 o'clock, but get a 2 at 8 o'clock. He sees that something is radically wrong, so he tries your rifle. Generally the rifle is not at fault; so the coach begins to study the case with the view of discovering the trouble. He has been looking at you—

1. To see if you have a good position and to see if the butt is properly placed against the shoulder.
2. To observe how your body moves after the rifle is fired.
3. To see if you strike yourself on the nose with your thumb or strike your cheek with your finger nails, or bruise the third joint of your middle finger against the trigger guard.
4. To see if the piece is canted.
5. To observe if you are breathing properly,—that is, holding your breath when you squeeze the trigger.
6. To see if you flinch.

345. **Scorebook.** Use your scorebook and study it carefully. The Bull's eye Scorebook and the Marine Scorebook are both excellent. Some riflemen prefer one while others prefer the other. Follow the instructions of the scorebook issued you and you will qualify as marksman or better.

While waiting to take your position on the firing line, enter in your scorebook the date, hour, place, wind, light, etc., just as explained in the scorebook. Be sure to do this; then when you come to fire at the same range with the same rifle on another day, and conditions are the same, you can start right in making 5's and 4's instead of 2's and 0's. In other words, you will not have to feel around for the bull's eye. You will know, for instance, how much windage you had the last time and what was the velocity of the wind. If the wind is not so strong this time, you will take less windage, and so on. In this way you will save time and loss of points in searching for the correct sight-setting.

346. **Effect of heat and cold.** Heat causes shots to strike high, and cold causes them to strike low.

Therefore, if you shot on a warm day and made 5's, and recorded temperature and other conditions in your scorebook, you would know on looking at your score sheets that you should raise your elevation, if you were firing on a cold day.

347. **Effect of moisture.** Dampness causes shots to strike high and dryness causes them to strike low. Therefore, on damp days take lower elevations than on dry days.

348. **Effect of Light.** Light affects the aiming without the beginner knowing it. It does not, however, affect the travel of the bullet.

A dark target causes a tendency to aim farther below the bull's eye than if the target were bright. Therefore, use higher elevations with dark targets. As it gets darker, higher elevations should be used.

If you *always aim carefully and correctly* the light will have little effect on your aiming,—that is, if your eyesight is good.

If you are shooting in a dull light and a bright sun comes out, say on your right, there is a tendency to move the front sight to the opposite (left) side of the rear sight notch, since the near (right) edge is shaded and obscured somewhat. Therefore ¼ to ½ windage into the sun (right in this case) should be taken to overcome this.

In using battle sight, hold higher for a bright light.

We also raise our sights if a strong sun comes out. Therefore, we have this rule: *Move your rear sight into the sun, just as you do for a wind,*—and *raise your elevation.*

Mirage gives a wavering appearance to the target. It is heated air that is moving. It is sometimes called "heat waves."

With the wind between 2 and 14 miles an hour on clear, hot days the waves can be seen moving across the target.

When there is no wind or a light six o'clock wind, the waves go straight up, or "boil." *Never fire when the mirage is boiling,*—wait for it to move from one side to the other and then take windage to correct for it.

349. **Summary of temperature, light and moisture effects:**

RAISE ELEVATION FOR—	LOWER ELEVATION FOR—
Dull target	Bright target
Shooting in the sun	Target in sun
Hot gun	Cold gun
Dirty gun	Clean gun
Cold day	Hot day
Bright or shining sight	Moist day
Cloudy day	Full sights
12 o'clock wind	6 o'clock wind

350. **Firing with bayonet fixed.** In firing with bayonet fixed usually a lower point on the target will be struck, corresponding to a reduction of about 50 yards in the range.

351. **Finding the target.** If you make a miss and you do not know where the bullet went, although you are sure you aimed correctly and your hold was good, you should—

1. See if you have set your windage into the wind. Sometimes men take left windage when they should have right.
2. See if your sights are at the proper elevation.
3. See whether the set screw which clamps the slide has loosened up and the slide slipped down or up.
4. Be sure that you used the correct notch.
5. Lower your elevation 50 yards if you are firing at 800 and 1000 yards. If at 500 or 600 lower 100 yards. Fire again and repeat with another reduction of range. If this does not find the target, add to the original elevation. If your sights are otherwise correctly set, you should find the target before a fourth shot is necessary.

352. **Coaching.** While any amount of coaching is permitted in the instruction practice, coaching of any nature whatsoever is strictly prohibited in record practice.

In record practice, after a soldier has taken his place at the firing point no one must attempt to render him any assistance whatever. (Par. 96, S. A. F. M.) He is not to talk to anyone about anything. (Author)

353. **Firing in pairs.** It is customary for two men to fire alternately at each firing point.

354. **Use of rests.** In known distance practice no rest except the authorized sandbag at 600 yards slow fire may be used.

However, in combat firing such rests as are available will be permitted.

355. **Dress and equipment.** In all classes of firing the service uniform will be worn. The coat may be omitted when authorized by the post commander.

In all known distance practice the soldier will be equipped with rifle, cartridge belt, and cartridge belt suspenders. When firing the cartridge belt suspender may be slipped from one shoulder if desired. (Par. 94, S. A. F. M.)

THE TARGET RANGE

356. **Noncommissioned officer in charge of pit.** A noncommissioned officer detailed to look after the arrangements at the butts.

357. **The parapet.** The mound of earth which protects the markers who are in the pit pasting the shot holes and indicating the value.

358. **The pit.** The space in which the targets are placed. It is a ditch 10 feet deep and 10 to 12 feet wide, of various lengths, depending upon the number of targets.

359. **The butts.** The pit, parapet and backstop, which is behind the targets, are called "The Butts."

360. The firing point. The line or spot on which the man is placed when firing.

361. **The range house.** A house built behind or near the butts, and in which target material is kept, targets are put together, pasted, etc.

362. **The range officer.** The officer charged with the management of the range.

363. **Disks.** The value of the shots are indicated from the pit with different colored disks that are fixed on the end of long handles.

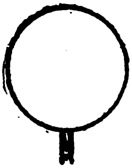


Fig. 109

A white disk indicates a bull's eye (5).

A red disk indicates a center (4).

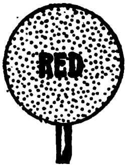


Fig. 110

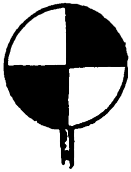


Fig. 111

A black and white disk indicates an inner (3).

A black disk indicates an outer (2).

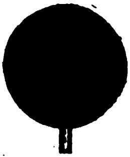


Fig. 112

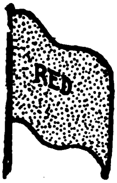


Fig. 113

A red flag indicates a miss.

A red and white flag indicates a ricochet (rick-o-shay), and means that the bullet struck the parapet and then glanced off and struck the target. The ricochet flag is shown with a disk of the value of the hit.

In practice, in the absence of the prescribed ricochet flag with white field and red center, a white and red flag are displayed.

A ricochet counts just as much as a clean hit.

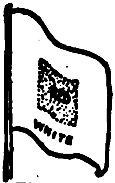


Fig. 114

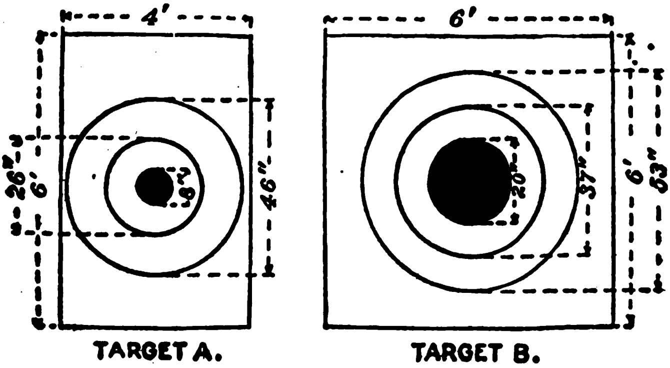

4'
26"
6'
8"
46"
TARGET A.
6'
20"
37"
6'
53"
TARGET B.

Fig. 115

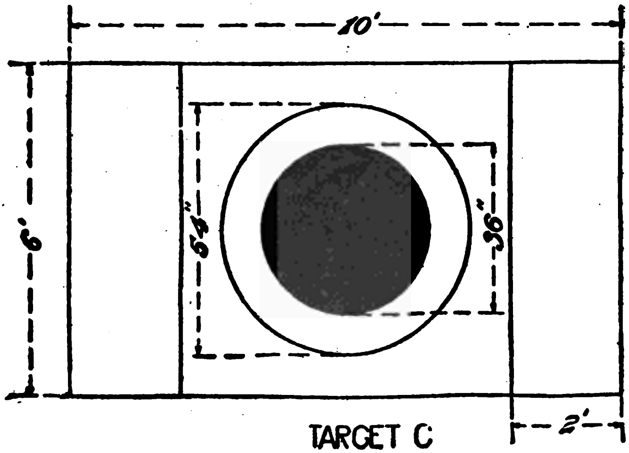

10'
6'
54"
36"
TARGET C
2'

Fig. 116

A shot which cuts the edge of the bull's eye is a 5; a shot which cuts any ring has the value of the space inside the ring.

364. **Spotters.** Spotters are small disks of tin or cardboard that are fastened on a peg which is put into the shot hole to indicate its position to those at the firing point. With a pair of field glasses they can be seen distinctly from the firing point and thus the exact location of the hit known. White spotters are used for 5's and black spotters for all other hits.

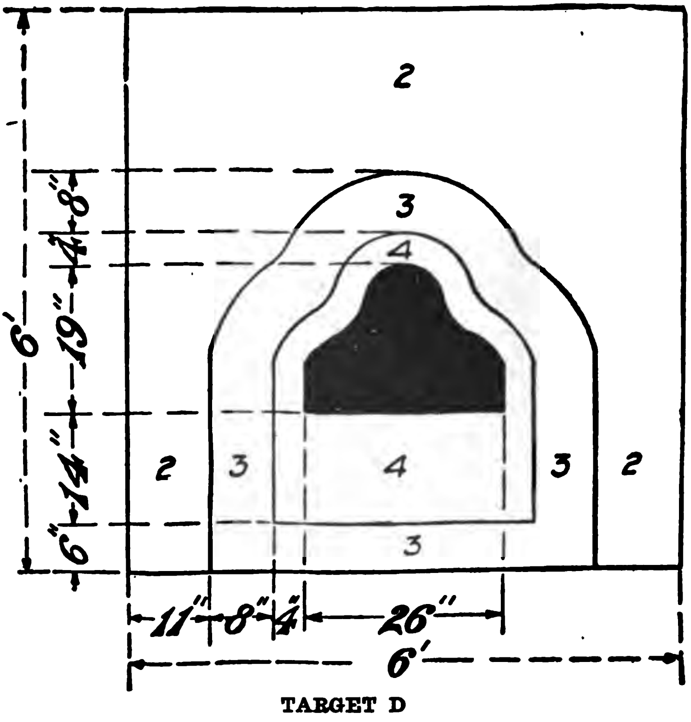
365. **Targets.** There are four targets used, and they are designated as "A," "B," "C," and "D" targets.

Target A is used for 200 and 300 yards, slow fire.

Target B is used for 500 and 600 yards, slow fire.

Target C is used for 800 and 1000 yards, slow fire.

Target D is used for 200, 300 and 500 yards, rapid fire.



TARGET D

Fig. 117

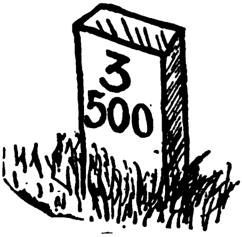


Fig. 118

366. Firing points. On well conducted target ranges the firing points are marked by stakes, Fig. 118, which means that this stake marks the firing point for the No. 3 target and the range is 500 yards,—that is, the target is 500 yards away from this stake.

Each target is numbered; the number being down low on the parapet or up on the backstop, above the top of the target.

Each man should be sure to fire on his own target. A bull's eye on the wrong target gets a zero on your score sheet. One shot wasted in this way may mean the loss of expert qualification,—or two dollars a month for the term of your enlistment,—an expensive piece of carelessness.

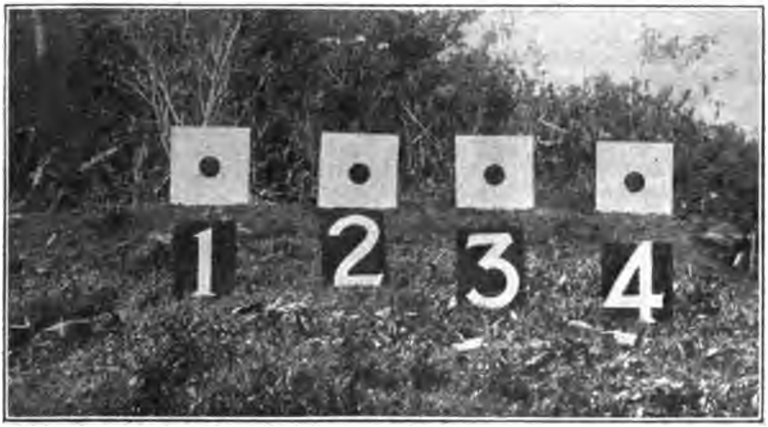


Fig. 119

Before you fire *glance up and see that you are on your own target.*

367. Marking. One of the important duties on the target range is that of *marking*. The First Sergeant details a certain number of men for "pit" detail,—usually two per target. These men are marched to the pit to be there about 20 minutes before firing is to commence.

They assist the noncommissioned officer in charge of the pit by getting the targets ready and in other ways.

Before firing starts the markers go to the targets to which they are assigned and when the firing begins they watch for the hole made by the bullet.

A little practice enables a man to tell whether his target was fired on, since the "crack" of the bullet going over your head sounds differently from the "crack" of the one passing to one side.

Just as soon as you know your target was fired on, either by sound or seeing the hole, pull it down and mark the raised target ACCURATELY. Place the center of the disk over the shot hole, and hold it there for a moment; then lower it.

Don't indicate where a miss went unless you are ABSOLUTELY POSITIVE about it. If you have to guess it, don't do it,—let the firer guess,—he will know he is guessing, but he does not think you are and he will go by what you mark. Suppose you are wrong,—and half the time you are, when guessing,—imagine the effect it will have on the firer. He will keep getting further away from the target.

The golden rule of the target range is: *Mark for others as you would have others mark for you.*

Be honest, careful and quick about your marking and your marking will be good.

Don't mark a miss until you have gone over the target carefully. Look in the rings and in the numbers indicating the value of hits. Examine edges of the frame carefully. Then if you are sure, wave the red flag.

368. **Danger Signals.** When the target is in place and not in use, *always* display the red signal flag in front of it, and be sure to place the flag so that it will be well above the parapet.

369. **Half-masting the targets.** If during the firing word is received that firing on such and such a target has ceased, the target in question is at once "half-masted,"—that is, brought about half-way down,—and the red flag displayed in front of it.

POINTS TO BE REMEMBERED

Before Firing

370. 1. Blacken the front and rear sights. Smoke from a small piece of burning camphor gives the best results. Be sure to clean off all oil from the sights before blackening them, thereby insuring a uniform, velvety, dry black.

2. Clean the bore with dry rags and then with a rag saturated with gasoline, so as to remove all oil, which is liable to make your shots go wild.

3. See that there is no oil in the well of the bolt, as some of it may fly into your eye when the piece is discharged.

4. Having blackened your sight and cleaned your rifle, you should, while waiting for your name to be called, spend your time in position and aiming exercises, aiming at the target or other objects on or near the range. This practice previous to firing will prevent nervousness and will have a marked effect on your score. Also, study the wind, estimating its direction and velocity. Check up your conclusions by asking the more experienced shots in the company.

5. Watch the expert shots while they are on the firing line, and see what they are doing. Get all the "dope" you can from them regarding windage, etc., before you take your place on the firing line.

6. When your name is called to replace a man on the firing line, get your score card at once from the First Sergeant and give it to the scorer of the target to which the First Sergeant has assigned you. Get your

rifle and ammunition, examine your sights to see if they are still black and adjust them. Adjust your sling, get out your scorebook and pencil, and go up near your firing point. Enter in your scorebook the date, hour, wind, light, etc.

7. When the man you are to relieve leaves the firing point, take your place promptly. *Then* load. *Do not under any circumstances load before you are on the firing line.*

8. **Don't waste your time while on the range. Keep your eyes open and learn. Know what you are to do, and do it. Don't make it necessary for your Company Commander, the first Sergeant, or someone else to get after you.**

POINTS TO BE REMEMBERED

While Firing

371. 1. Don't breathe while aiming. Take a deep breath; let some of it out, and then hold the remainder until after you have fired.

2. Get your sights aligned, and gradually *squeeze* your trigger. Keep your eye open when you discharge the piece. Continue your aim for a moment after discharge. This will enable you to call your shot. Call each shot.

3. Record each shot in your score book, and likewise record light, wind, time, etc., and follow directions therein.

4. Don't flinch. Wear pads and you won't be bruised by the kick.

5. Don't cant your piece. A little cant will throw you will out of the 4 ring.

6. Place the butt of your rifle in the hollow of your shoulder,—not on your arm. Hold tight, for if the piece is held loosely there will be a hard kick.

7. Place your right thumb *along* the stock and press your cheek against the stock.

8. Don't aim too long,—get your sights aligned quickly.

9. Except when your sight is being marked, don't look at the target between shots. Rest your eyes.

10. Don't rub your eyes. It will irritate them.

11. Immediately upon firing pull back the bolt to allow barrel to cool. Don't reload until the man shooting with you has fired. Then do so and aim, fire and eject empty shell.

12. Frequently examine your rear sight to see whether the slide has been jarred loose by the explosion and has slipped down.

13. Be sure you are using the right notch, and also be sure you are firing on the right target. A "5" on another target counts "0" for you.

14. In case of misfire do not draw back the bolt immediately, as it may be a case of hang-fire and an explosion may result which may cause serious injury. In such case cock the piece by drawing back the cocking piece with the hand.

15. Do not leave your cartridges exposed to a hot sun. Keep them in your belt, which will also keep them clean. Cartridges that have been lying in a hot sun will fire high. This also applies to cartridges placed and kept in the chamber of a hot rifle a considerable time before firing. Never place the cartridge in the rifle until you are ready to fire it.

POINTS TO BE REMEMBERED

At All Times

372. 1. Never let the firing pin down by hand on a cartridge in the chamber. If necessary to carry the piece cocked, with a cartridge in the chamber, turn the safety lock to the *right* as far as it will go, so that the word "*Safe*" is seen.

2. In manipulating the bolt always draw it back as far as it will go, thus making sure that the empty shell will be ejected and that when the bolt is shoved forward it will catch the top cartridge in the magazine.

3. Be sure always to have some oil in your oiler, and that the thong and brush when not in use are always in the oiler and thong case.

4. Keep the cover on the front sight habitually.

5. Never load your piece or carry cartridges in the magazine unless specifically ordered to do so.

6. Keep the cut-off turned "*Off,*" except when actually using the magazine.

7. Carry your piece habitually with the safety lock at "*Safe,*"—that is to say, locked.

8. Use the sling in all shooting. It will improve your shooting.

9. Never put the muzzle of your piece on the ground. If you do, you will probably get dirt in it, and if you should fire the rifle with dirt in the muzzle, the barrel will probably be seriously injured. Even if you don't fire the piece, in removing the dirt from the muzzle you may injure the muzzle and thus reduce the accuracy of the rifle.

10. Remember that to shoot well a man must be in good physical condition.

IN CONCLUSION

373. *Practice,* **practice, PRACTICE.** There is no royal road to good marksmanship,—it requires lots of constant, careful, hard and patient practice. This is the only way that the eye, the muscles of the body and the nervous system can be kept in that condition which is necessary for them to be in order to work in unison with one another and with the mind, a requisite without which good marksmanship is impossible.

It is said that the great pianist, Paderewski, practices on a dumb piano for hours every day in order to keep his fingers in perfect condition. So, too, it is necessary for the rifleman to train his muscles and keep them in proper condition.

If properly trained the muscles will not by an improper or convulsive movement pull the rifle off the target when the piece is fired. The muscles must be trained to hold the rifle steady.

The hand must be taught to SQUEEZE the trigger so that the aim will not be disturbed and the final pressure will be applied at the exact moment when the top of the front sight is seen to be properly directed on the target.

The eye must be trained to take the same amount of front sight each time and to be focused on the target when the piece is discharged.

But these things require *practice,* **practice, PRACTICE.**

So, take advantage of every opportunity to practice aiming and SQUEEZING the trigger. It is a common thing at competitions to see expert shots standing, kneeling, sitting, or lying on the ground practicing by the hour SQUEEZING the trigger and holding the rifle steady. They place a black disk on a wall 20 or 30 feet away and try to hold the rifle on it.

If expert shots find it necessary to do this, just think how much more necessary it is for beginners. Remember that they were beginners once. If you practice faithfully as they did, there is no reason why you cannot attend competitions and win medals, too.

Use some of your spare moments in practicing the position and aiming exercises.

Put a black paster up on the wall of your squad room and every day practice an hour or more holding on it,—that is, aiming at it and SQUEEZING the trigger. When standing around on the company parade, waiting for the company to fall in, practice some more. When on the target range waiting for your turn to shoot, get off to one side and practice holding on a target.

This practice, in addition to training the muscles and educating the eye, will also overcome nervousness.

Remember, in your practice *always to aim at some particular object.*

374. **The Hollifield Target Practice Rod.** The best instruction practice that can possibly be had in aiming and in squeezing the trigger is to be obtained with the Hollifield Target Practice Rod, a device which the author, as the result of experience, cannot recommend too highly. The following illustration shows the rod in use:

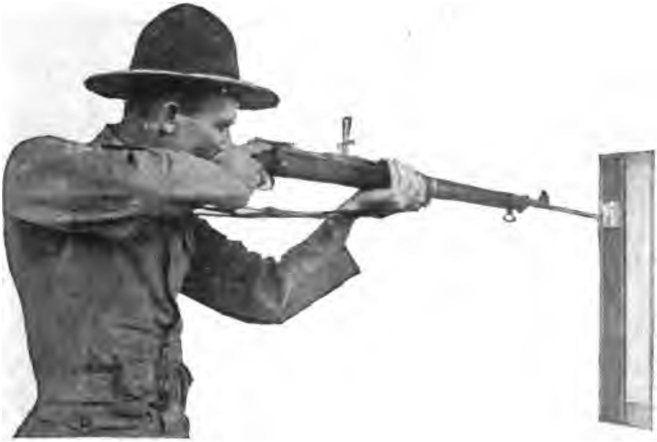


Fig. 120

It is really astonishing what results can be obtained from a persevering and painstaking use of the Hollifield rod, which possesses a certain "human interest" that dispels entirely the monotony and irksomeness of aimless snapping. The instructions for the use of the rod describe a simple and effective method of using the device also for elementary practice and instruction in windage and elevation.

The latest Hollifield rod is equipped with an excellent dummy cartridge feature, which enables practice in the mechanism of rapid fire, and instruction should be had with it in rapid fire as well as in slow fire. Men should be required to call their shots.

The Hollifield Target Practice Rod has been officially adopted by the United States Army and can be obtained upon requisition just like any other article of ordnance property. The National Guard of States can get it under Section 1661 R.S., or Section 17 of the Amended Militia Laws. Individuals can, of course, purchase it direct from the Hollifield Target Practice Co., Middletown, N. Y.

AMMUNITION FOR UNITED STATES RIFLE, CALIBER .30, MODEL OF 1917

Ball Cartridge, Model of 1906

375. The Caliber .30 Ball Cartridge, Fig. 1, consists of the *case, primer, charge of smokeless powder,* and *bullet.* The case is of cartridge brass. It has a conical body joined to the neck by a sharper cone, called the shoulder. The neck is the seat of the bullet and is very nearly cylindrical. The front end of the case is called the mouth and the rear end the head. The mouth edge of the case is crimped on the bullet, when the cartridge is assembled, in order to keep the bullet secure in the case. The head of case is grooved to provide for extraction of cartridge from the chamber of the rifle and is provided with a primer pocket and vent. The initials of the place of manufacture, the number of the month, and the year of its fabrication are stamped on the head of the case.

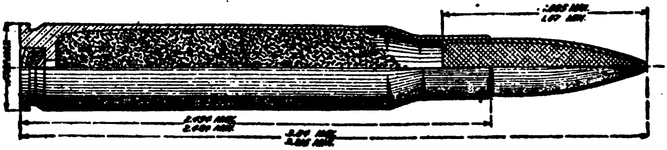


Fig. 121

The primer consists of the *cup, percussion composition, disk of shellacked paper,* and *anvil.* The cup is of gilding metal and contains 0.46 grain of nonfulminate composition composed of tersulphide of antimony, potassium chlorate, and sulphur. A disk of shellacked paper covers the composition to protect it from moisture and to prevent electrolytic action. The anvil is of brass and is assembled over the paper. After the primer is assembled to the case, a drop of shellac is placed on the head of the primer to make the joint waterproof.

The charge is of pyrocellulose composition very similar to the powders used as propelling charges in field and seacoast guns. The grains are cylindrical, single, perforated, and graphited. The normal charge weighs from 47 to 50 grains, varying with the lot of powder used.

The bullet has a core of lead and tin composition inclosed in a jacket of cupro-nickel. It weighs 150 grains, and the point is much sharper and offers less resistance to the air than that of any previous model in the United States service. The bullet is cannelured to receive the crimp of the case, and the base of the bullet is flat. The neck of the case is shellacked before loading, and a pressure of at least 75 pounds is required to seat the bullet in the case; this, with the addition of the above-mentioned crimp, makes the case waterproof.

The cartridge complete weighs about 395.5 grains, its weight varying slightly with variation in the weight of the powder charge.

Five cartridges are packed in a clip.

The Clip, Fig. 2, consists of the *body* A and the *spring* B, both of brass. On the exterior of the sides of the body are the *stop lugs* C, which seat the clip in its slots in the receiver of the rifle. The top edges of the slides are folded inward, forming flanges, which, fitting into the grooves in the heads, hold the cartridges in place. The spring is secured to the bottom of the body by two sets of *interlocking lips* E. The spring is provided with narrow *tongues* D, which, when the clip is filled, are pressed into the grooves of the outside cartridges, holding the cartridges securely in the clip. The clip body can be used a number of times, but the springs only once.

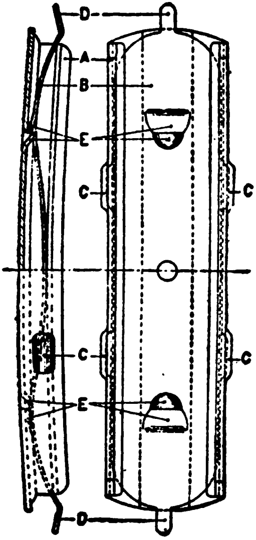


Fig. 122

The gallery practice and dummy clip is provided with a strong bronze spring without tongues.

Sixty ball cartridges in 12 clips are packed in a bandoleer.

The bandoleer is made of olive-drab cloth and contains six pockets, each holding two clips. The clips can be readily taken out by forcing back the fold of the pocket.

The bandoleer is provided with a shoulder strap of olive-drab webbing by which it is carried over the shoulder, and a safety pin is provided to afford an adjustment of its length to suit the convenience of the soldier. When packed, the bandoleer weighs about 3.88 pounds.

In each bandoleer is placed an identification card showing the number of cartridges, the caliber and model of ammunition and rifle, place and date of manufacture, kind and lot of powder, and muzzle velocity. The shop symbols of loaders, inspectors, and packers are also given. In case of defective ammunition this card should be returned with report.

Twelve hundred cartridges are packed in a terneplate-lined packing box, hermetically sealed. Each box contains 20 bandoleers of 60 cartridges each. The packing box measures 34.5 by 9.5 by 8.25 inches and weighs about 100 pounds when filled.

The lid is held to the box by five brass bolts and can be easily removed without the use of tools. Two wire seals connect the cover with the sides of the box.

When the lid is removed, the lining may be torn open by means of a wire handle on the metal cover.

A metallic packing chest is also in use. It is made of tinned sheet iron painted olive drab. This chest holds 1,200 cartridges packed in 20 bandoleers of 60 cartridges each. It has a terneplate cover under the lid and is hermetically sealed.

The chest measures 8 by 16¼ by 14 inches and weighs about 95 pounds when filled.

A tin seal locks the hasp to the lid. By opening and closing the fold of this seal several times it will break, thus permitting it to be easily withdrawn. When the lid is opened, the cover can be torn off by means of an iron handle attached thereto.

Blank Cartridge, Model of 1906

376. The BLANK CARTRIDGE, model of 1906, Fig. 123, differs from the ball cartridge in the charge of powder and in the bullet and in the fact that the case is tinned. The bullet is of paper, hollow, and contains a charge of 6 grains of "E. C." smokeless powder, which insures the breaking up of the bullet on leaving the bore. This charge is retained in the bullet by a drop of shellac. A coating of paraffin on the outside of the bullet prevents the absorption of moisture by the paper. The propelling charge is 10 grains of "E. C." powder.

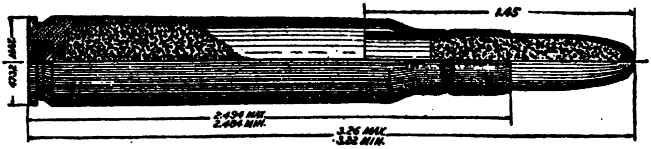


Fig. 123

The cartridge is made 0.1 inch shorter than the ball cartridge. This is a measure of protection against the accidental assembling by the machine of a ball cartridge in a clip of blank ones.

The Blank Cartridge Model of 1909

377. In the manufacture of these blank cartridges, Fig. 124, cases are used which have been fired, or which have slight defects, rendering them unsuitable for use in ball cartridges. The charge is 12 grains of "E. C." powder.

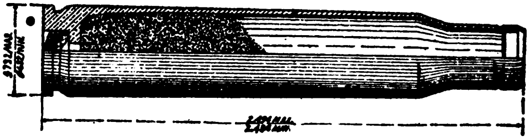


Fig. 124

The case is closed by means of a paper cup inserted in the mouth of the cased and shellacked to render the ammunition waterproof.

Dummy Cartridge

378. The case of the DUMMY CARTRIDGE, Fig. 125, is tinned and provided with six longitudinal corrugations, also three circular holes in the corrugated portion.

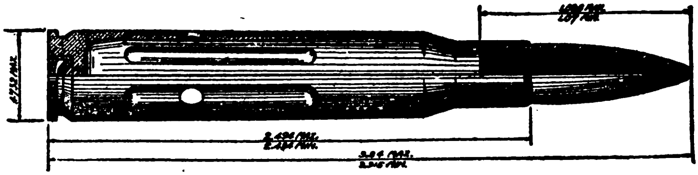


Fig. 125

The tinning, corrugations, and holes afford unmistakable means for distinguishing the dummy from the ball cartridge, both by sight and touch. The bullet is the same as in the ball cartridge. The dummy primer has cup and anvil, but no percussion composition.

Guard Cartridge

379. This cartridge, Fig. 126, differs from the ball cartridge in the charge of powder and in the fact that second-class bullets having slight imperfections are used. Five cannelures encircle the body of the case at about the middle, affording means for distinguishing it from the ball cartridge by either sight or touch.

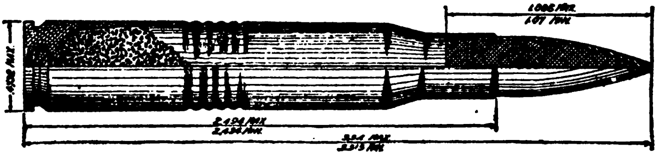


Fig. 126

The charge, about 9.1 grains bull's eye powder, or 16.7 grains Du Pont Rifle Smokeless No. 1, gives a muzzle velocity of 1,200 feet per second. This cartridge gives good results at 100 yards and has sufficient accuracy for use at 150 and 200 yards. The range of 100 yards requires a sight elevation of 450 yards, and ranges of 200 and 300 yards require elevations of 650 and 850 yards, respectively.

The guard cartridge, Fig. 127, as now issued, differs from the old issue, Fig. 126, in that six longitudinal corrugators $^3/_{16}$ inch long start from the shoulder of the case. This affords means of distinguishing this cartridge from the ball cartridge. This cartridge has the same charge of powder, muzzle velocity, etc., as the old issue.

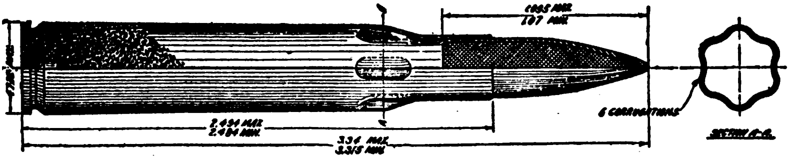


Fig. 127

LESSON 12

COLLECTIVE INSTRUCTION

(Combat Practice)

380. General scheme. While individual instruction is most important, it is not everything. The maximum effect of fire in battle is obtained when a command, as a whole, is a pliable, manageable, effective instrument in the hands of a commander who can use it intelligently and efficiently. Therefore, the two objects to be obtained are:

1. To make the command a pliable, manageable, effective instrument in the hands of its commander.
2. To train and instruct the commander so that he will know how to use this instrument in an intelligent and efficient manner.

381. To make the fire unit a pliable, manageable, efficient instrument. In order that a unit may be a pliable, manageable, efficient instrument in the hands of its commander, he must be able to control the unit absolutely,—that is to say, not only must the individuals composing the unit be so trained that they will respond at once, even in the din and confusion of battle, to the will of the commander, as expressed by his orders, but they must also be so instructed and disciplined that they can, as individual parts of the unit, perform their functions efficiently. This is accomplished by *fire discipline.*

382. Fire discipline. By *fire discipline* is meant a habit of obedience, a control of the rifle, and a display of intelligence, all the result of training, which will enable the soldier in action to make hits instead of misses. It embraces taking advantage of the ground; care in setting the sight and delivery of fire, including proper fire distribution; constant attention to the orders of the leaders and careful observation of the enemy; an increase of fire when the target is favorable, and a cessation of fire when the enemy disappears; economy of ammunition.

383. To train and instruct the commander to use the unit with intelligence and efficiency. In order to handle the unit with intelligence and efficiency, utilizing to the greatest extent possible the power of all the rifles under his command, not only must the commander be able to control the unit, having it respond at once to his every command, but he must also know tactics, and be thoroughly familiar with the technical principles of infantry fire.

384. Combat exercise. A combat exercise consists of the application of tactical principles to a certain assumed battle situation, in the execution of which are employed the appropriate formations and movements of close and extended order drill, and in which, as a rule, ball cartridges are used in firing at the targets.

By means of combat exercises, the unit commanders are trained and instructed in applying tactical principles, in controlling and directing the fire of their units and the men are trained and instructed in fire discipline.

The tactical principles applicable to combat exercises are covered in the Infantry Drill Regulations, under the headings of *''Fire''* and *''Combat.''*

385. Technical principles of firing. The technical principles of firing are given in detail in the Small-Arms Firing Manual, a summary of which is given below under the headings of, *The Effect of Fire, The Influence of the Ground,* and *The Adjustment of Fire.*

THE EFFECT OF FIRE

386. Ballistic qualities of the rifle. The accuracy of a rifle, the flatness of its trajectory, and its disabling power,—that is, the power it has to disable the enemy,—are called its *ballistic qualities.*

The accuracy of the U. S. Springfield rifle, caliber .30, model of 1903, is very high,—probably superior to that of any other military rifle.

The flatness of trajectory is dependent upon the muzzle velocity, and, to some extent, upon the form of the bullet. Our bullet is pointed and the muzzle velocity is 2700 feet per second, which is a very high muzzle velocity.

Two rifles of different type may be equally accurate, but the accuracy of the one having the flatter trajectory will, naturally, be less affected by slight errors in sight setting.

Again, another advantage of the rifle with the flatter trajectory is that it holds more ground under its fire. For example, take our service rifle: At a range of 500 yards, the bullet, at the highest point in its trajectory or line of flight, is 2 feet above the line of sight. It is, therefore, apparent that if the bottom of an object 2 feet or greater, is aimed at, it would be struck if it were anywhere under 500 yards. Now, take a rifle with a very curved trajectory, say one whose bullet, at the highest point of the trajectory corresponding to a range of 500 yards, is 10 feet above the line of sight. There will be a large extent of ground between the target and the rifle, that is not danger space for a target 2 feet above the line of sight. Hence, we see that the rifle with the flatter trajectory is better.

The continuous danger space afforded by the flat trajectory of our service rifle enables us to adopt a universal sight for all ranges up to 500 yards,—that is, the battle sight, which is the rear sight ready for use when the sight leaf is laid down.

387. Cone of fire or cone of dispersion. If a body of soldiers fire at the same target the bullets will not, of course, follow the same path, but will be scattered. This is due to differences in sights, parts of the rifle, ammunition, and to a greater extent, to the individual errors of the soldiers in aiming and firing.

The trajectories or paths of the bullets considered together form a horn-shaped figure or cone, called the *Cone of fire* or cone of dispersion. (See Fig. 128.)

388. Shot group and center of impact. If the *cone of fire* be intercepted by a target (for example, A O, Fig. 128) at right angles to the axis of the cone, the shot holes will make a pattern or group called the *shot group,* the holes being the thickest approximately in the center of the group, called the *center of impact.* From this point in all directions the

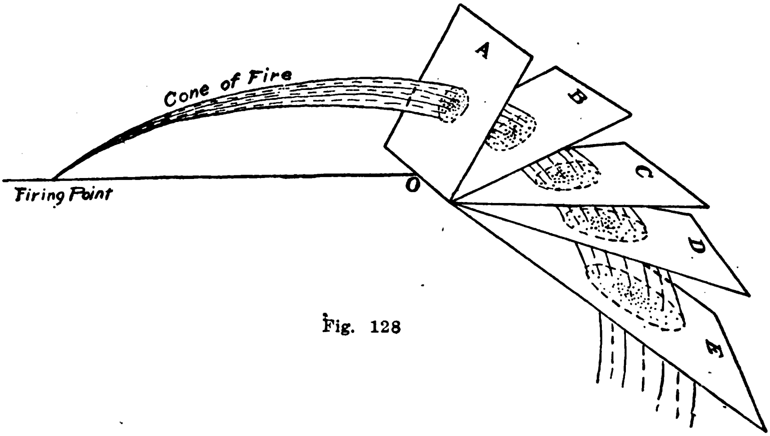


Fig. 128

density of the grouping decreases progressively,—at first gradually, then more rapidly, out to the limits of the group.

Naturally, the size of the cone of fire and of the shot group vary with the skill of those firing, good shots making a small cone and small group, and poor shots a large cone and large group.

389. Beaten zone. The intersection of the cone of dispersion with the surface of the ground is called the *beaten zone.*

If the surface of the ground is horizontal, the form of the *beaten zone* is that of an ellipse with its longer axis in the direction of the line of fire, as shown in Fig. 129.

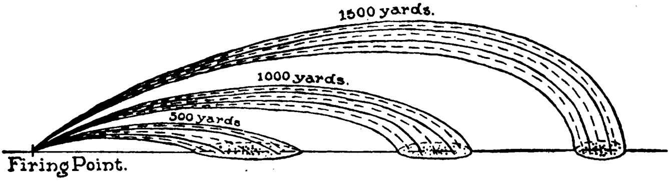


Fig. 129

In view of the fact that at the long ranges the angle of fall of the bullets is much greater than at short ranges, it follows that at short ranges the elliptical figure (beaten zone) is much more elongated than at long ranges. In other words, the longer the range, the shorter is the depth of the beaten zone. This is shown in Fig. 129.

390. Uncertainty and ineffectiveness of long-range fire. It follows from what has been said, that as the range increases the length of the beaten zone decreases,—that is, a less depth of ground is held under fire. That being the case, if an error is made in sight setting due, for example, to an incorrect estimate of the range, the proportionate loss of fire effect due to misplacement of the center of impact will be greater as the beaten zone is less,—that is, as the range is greater.

Furthermore, the difficulty of exact range determination increases with the distance, the two influences combining to make long-range fire uncertain and usually ineffective.

391. **Zone of effective fire.** That portion of the ground which contains the best 75 per cent of the shots in the beaten zone, is called the *zone of effective fire.*

EFFECTIVENESS OF FIRE

392. **Factors involved.** The effectiveness of fire depends upon these three factors:

(1) The percentage of hits made;
(2) The number of targets hit;
(3) The time of execution.

That is to say, the effectiveness of fire is determined by the number of enemies disabled or targets hit in a given time.

393. **Percentage of hits.** By the percentage of hits is meant the proportion of all the bullets fired that hit the targets. For example, if 1000 bullets are fired and 750 hit the targets, then the percentage of hits is 75.

The percentage of hits depends upon the dispersion, and this is influenced by the precision of the arm, the range, the visibility of the target, the atmospheric conditions, the training and instruction of the troops, and upon their physical and moral state at the time. In addition, the percentage of hits also depends upon the character of the ground as favoring ricochet hits, upon the correct estimation of the range and the proper designation of the target.

394. **Number of targets hit.** The number of targets hit—that is, the distribution of fire,—may be affected by varying degrees of visibility, as men instinctively choose the more conspicuous marks as aiming points. Under any circumstances, a poor distribution of the hits made will be due to an absence of proper instructions from the leaders; or, in other words, to poor control, or else to a want of understanding or lack of obedience on the part of the men.

395. **Time of execution.** The time of execution is important in that the gaining of fire superiority is dependent less upon obtaining high percentages of hits than upon making an absolutely large number of hits in a unit of time. There is necessarily a limit to the rapidity of fire which, if exceeded, will result in some loss of accuracy. With targets of a fair degree of visibility, the following may be taken as standard rates of fire for troops who have been given suitable training in target practice:

200 yards	10 shots per minute.
300 yards	
400 yards	
500 yards	7.5 shots per minute.
600 yards	
700 yards	
800 yards	5 shots per minute.
900 yards	
1,000 yards	

Greater ranges, 3 shots per minute.

The rates given should not exclude higher rates of fire in the case of large and conspicuous targets. On the other hand, when objectives, or marks used as aiming points, are very indistinct, the requirement of correct aiming imposes rates of fire somewhat lower than the standard rates given even for well-instructed men.

With imperfectly trained men who have not fully acquired the habit of using aimed fire only, and who are lacking in the manual dexterity required for executing the standard rates of fire, the maximum rate can not well exceed six shots per minute without incurring the danger of lapsing into unaimed fire.

Fatigue and exhaustion, the results of marches or prolonged firing, have a detrimental influence and tend to lower the rates of effective fire.

Influence of Ground

396. **Defilade.** If we will consider a bullet just grazing the top of an impenetrable obstacle (like "A," Fig. 130, the space from the top of such obstacle to where the bullet strikes the ground (space B E, Fig. 130) will be protected from fire. Such space is called, "*defiladed space.*" Its extent will, of course, depend on the height of the obstacle, the curvature of the trajectory and the slope of the ground in rear of the obstacles.

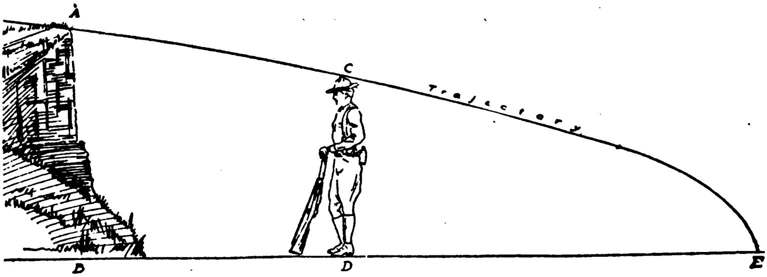


Fig. 130

Because B and D, a soldier standing would be completely protected; between D and E, he would be only partially protected. To obtain complete protection between D and E the soldier would have to assume the kneeling or prone position, depending on how far away from D he was.

By cover is meant effective defilade from the enemy's fire.

By concealment is meant screening from view but not necessarily protection from fire.

397. **Rising and falling ground.** The influence of the ground upon the effect of fire is at once seen by studying Fig. 128.

If the ground rises, as shown by B O and A O, the depth of the beaten zone (and consequently the effect of fire) decreases. On the other hand, if the ground falls (up to a certain point), the depth of the beaten zone (and consequently the effect of fire) increases.

398. **Depth of beaten zone affects only targets having depth.** It should be remembered that depth of beaten zone can affect only targets which have depth.

On a target in the form of a line,—a line of skirmishers, for example,—the depth of the beaten zone has no effect one way or the other. If such a target, however, is backed up by supports and reserves, the depth of the beaten zone may have a decided effect on them, depending upon their distance in rear of the line forming the target and the slope of the ground in rear of such target.

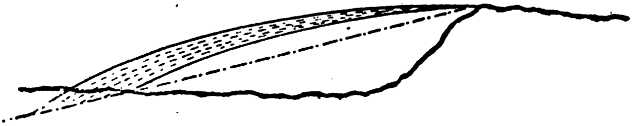


Fig. 131

In this connection, attention is invited to Fig. 131, which shows how in the case of a fire delivered from a height at a target on a horizontal plane beneath, the beaten zone is shortened and consequently the fire effect decreased.

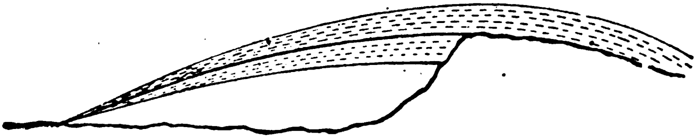


Fig. 132

An example of increasing the depth of beaten zone is seen in Fig. 132, which shows a fire delivered from low ground at a target on the edge of a plateau or crest of a ridge from which the ground slopes to the rear.

399. Grazing fire. Shots which pass over a crest with an angle of fall conforming, or nearly conforming, to the slope of the ground beyond the edge of the crest (as shown in Fig. 132), are called *grazing shots* and fire so delivered is called *grazing fire.*

400. Diminution or increase in fire effect due to rising and falling ground. In connection with the diminution or increase in fire effect due to rising and falling ground, attention is invited to the following:

1. If the ground slopes upward to the rear from a firing line, the supports may be placed closer without increasing the danger from fire aimed at the firing line.
2. When the ground slopes down and to the rear from the firing line forming the target, the supports must be posted at a greater distance in rear, unless the slope is so much greater than the angle of fall of the hostile bullets that a defiladed space is created in which no bullets strike, in which case the supports may be brought up close to the crest.
3. On ground rising with respect to the line of sight, column targets (i. e., having depth) will suffer greater losses than lineal targets.
4. On ground falling with respect to the line of sight, the reverse slope of hills or the level grounds of plateaus, line targets will suffer the greater losses.

401. **Ricochet shots.** When a bullet strikes any surface and is deflected it is called a *ricochet shot.*

Not only do bullets that ricochet usually tumble after striking, but they are also mutilated, so that wounds inflicted by ricochet hits are usually severe.

The most favorable ground for ricochets is a smooth, hard, horizontal surface, the aim being low, the chance of ricochets in sand is very slight.

402. **Occupation of ground.** The question of the occupation of ground presents these two aspects:

1. What firing positions may be chosen which will tend to increase the losses of the enemy?
2. What positions may be chosen and formations adopted to minimize our own losses?

The selection of a defensive position presents this question: *Shall it be near the crest or well down the slope?*

A POSITION WELL DOWN THE SLOPE

Advantages:

1. The depth of the beaten zone for fire delivered from the position is increased and the upper portion of the cone of fire will include the supports and reserves advancing to reënforce the hostile firing line. That is to say, the fire will be a *grazing fire.*
2. It eliminates dead spaces that might otherwise exist at the bottom of the slope.
3. The hostile fire being directed against a point well down the slope, the high ground in rear will interpose as a defilade and intercept the upper portion of the cone of fire which might otherwise take effect on the supports and reserves behind the crest.

Disadvantages:

1. It makes withdrawal difficult in case it becomes necessary to fall back.
2. It is difficult to reënforce the firing line.

A POSITION NEAR THE CREST

Advantages:

1. It favors observation of the enemy.
2. It makes withdrawal easy in case it becomes necessary to fall back.
3. It is easy to reënforce the firing line by the supports advancing from behind the crest.

Disadvantages:

1. The depth of the beaten zone is decreased and consequently the cone of fire will probably not include the supports and reserves advancing to reënforce the hostile firing fire. In other words, the fire will be a *plunging fire.*
2. It is likely to result in dead spaces at the bottom of the slope.
3. It affords a good target for the hostile artillery.

Whether or not a position near the crest or a position down the slope should be chosen, depends, in each case, upon circumstances.

For instance in a rear guard action, where a determined stand is not contemplated, a position near the crest would be occupied. On the other hand, if a determined stand were contemplated, the terrain offered good opportunity for the delivery of an effective grazing fire, and we had reason to believe that we were going to be subjected to heavy artillery fire, a position at the foot of the slope would be selected.

However, it may be said that, in general, a defensive position should be near the bottom of the slope.

403. **Gentle reverse slopes.** From the point of view of avoiding losses, all gentle reverse slopes are dangerous and are to be avoided when possible.

When necessary to traverse or to occupy such ground, precautions must be taken to protect the reserves or other bodies of troops by placing them on the flanks; by disposing them in formations with a narrow front; by causing them to lie down; by the construction of suitable shelter, and by avoiding useless movements.

ADJUSTMENT OF FIRE

404. **Fire at stationary targets.** The correct adjustment of fire is attained by causing the center of impact to fall on the center of the target. This is the problem constantly presented in combat firing.

The two important elements entering into this problem are, (1) the commander and (2) the troops. When a body of troops has aimed correctly at the target indicated, with the elevation ordered and has fired with steadiness, it has done all that can be expected of it, but that is not sufficient; for, if the commander, by giving the wrong sight-setting, for example, has failed to cause the center of impact to fall on the center of the target, the result may be nothing. Hence the vital importance of knowing and announcing the correct range.

It is known that good shots make a small group and poor shots a large group, average shots making a group of intermediate size.

It is frequently stated that troops composed of good shots are not so effective in collective firing as poorer shots. How is this possible? The explanation is simple. The shot group of the good shots is small and if misplaced by an error in range estimation few hits result while the shot group of poorer shots, being larger, is not so much affected by the same error in range estimation, will cover the ground, and probably hit more figures. This, of course, is *only true* when a considerable error has been made in estimating the range.

As battle targets are mostly line targets, a displacement to the right or left does not amount to much, but an error in depth (range), as stated before, is serious. Thus, we see that the *correct determination of the range* is very important.

405. **Determination of range.** The range may be determined, with only a small error, by a range finder. There are several other methods, as, for instance, by trial shots,—the dust thrown up by the bullet showing whether the range is too short or too great,—by sound, by the appearance of objects, etc., but except in deliberately prepared defensive positions, estimating by eye will be the most practicable method of estimating the range. For all practical purposes a very satisfactory result will be obtained by taking the average estimates of several trained men.

In observing the effect of the fire the ground may be wet, or covered with turf, sod or brush in which no signs of striking shots can be seen. By careful use of good field glasses some indication of the place where the shots are going, may be obtained. The actions of the enemy may often indicate whether the fire is effective or not.

406. **Combined sights.** All other means failing, *combined sights* may be resorted to. By this is meant firing part of the troops with sights set at one range and part with a range greater or less by 100 yards or more. This increases the beaten zone and will generally assure a certain amount of fire effect. This method is seldom used under 500 yards.

407. **Auxiliary aiming points.** It frequently happens that the target is so well concealed that it is invisible. In this case some well defined object in front or behind it must be used as an *aiming target,* and the range given so that the beaten zone will include the actual target at its center.

408. **Fire at moving targets.** In firing at a moving enemy, a beaten zone must be established immediately in front, his forward movement into this zone completing the adjustment of fire. Due to the chance of overestimating the range, a sight-setting must be taken *well under* the estimated range (usually about 200 yards against advancing infantry).

When the fire becomes effective, as may be judged by the actions and movements of the enemy, the rate of fire should be quickened in order to increase the effect of the fire.

Frequent changes of sight not only cause a loss of time, but they also multiply chances of error in sight-setting. Changes in sight-setting against advancing infantry should not be less than 200 yards at a time, that is to say, when the enemy has passed through the zone of effective fire, the sight should be lowered 200 yards and the operation repeated until the battle-sight zone is reached, when the rear-sight leaf is thrown down and no other sight manipulation is made.

Against skirmish lines advancing by rushes, the sight-setting should not be changed during a rush, but it should be done at the halts, so that the greater vulnerability of the targets presented during the rush may be taken advantage of.

Against retreating infantry, use the estimated range, and when the target appears to have passed beyond the zone of effective fire, add 200 yards to the sight-setting.

Against attacking cavalry, due to the rapidity of the advance, there will not usually be time for sight manipulation other than throwing down the rear-sight leaf, so that the battle should be resorted to at all ranges.

In firing at a target moving across the line of fire it is desirable, on account of the confusion caused thereby, to hit the head of the column. It is necessary, therefore, to hold to the front a distance sufficient to allow for the time of flight and the rate of march. This will be accomplished by the observance of the following rough rules:

1. Against infantry, hold against the head of the marching column;
2. Against cavalry at a trot, hold to the front 1 yard for every 100 yards of range; and at a gallop, 2 yards for every 100 yards of range.

409. **Night firing.** In night firing it is almost impossible to adjust the fire by ordinary means.

In night attacks the purpose of the offensive is to gain rapidly and quietly a position where the issue may be decided in a hand to hand encounter, or a position from which the superiority of fire may be gained at daylight. For the offensive, therefore, fire action is a subordinate consideration.

On the defensive, when a night attack is apprehended, preparations should be made to sweep with fire the ground immediately in front over which the assailant must advance.

Special arrangements may sometimes be made for resting rifles on the parapet, so that the ground in front will be suitably covered. A solid support is necessary for maintaining the proper direction of the pieces during firing. For this purpose notched boards or timbers are convenient. The arrangements should be such that the operations of loading and firing may be performed without removing the rifles from the support.

Searchlight illumination may reveal the position and movements of the enemy sufficiently well to permit the use of the sights. In night operations of small parties fire may be well directed when a bright, well-defined light, such as a camp fire, is presented as an aiming point. In such a case a slight illumination of the front sight is required.

FIRE DIRECTION AND CONTROL

410. General. As stated before in substance, the maximum effect of fire can be gotten only by instructed and disciplined troops under a commander capable of directing and controlling their fire properly.

The fire of a company may be likened to spraying water from a hose, and as the fireman can shift his stream of water from one point to the other with certainty, being able to direct and control it with promptness and accuracy, so should the company commander be able to switch the cone of fire of his company from one target to another, having it at all times under direction and control. In other words, as the pliable, manageable hose responds to the will of the fireman, so should the company be so trained and instructed that it will respond to the will of the company commander on the firing line, in the midst of the noise and confusion of battle. No one except a man who has been in battle can realize how great are the noise and confusion, and how necessary and important are coöperation, teamwork, discipline, and communication, in order for a company commander to control and direct the fire of the company—there must be absolute coöperation, teamwork, and communication between all parts of the company—between the captain and the platoon leaders, the platoon leaders and the squad leaders, and the squad leaders and the members of their squads. Each and every man must know and do his part and endeavor all he can to keep in touch with and help the others. Now, the foundation of teamwork and coöperation is communication—communication between the company commander and the men on the

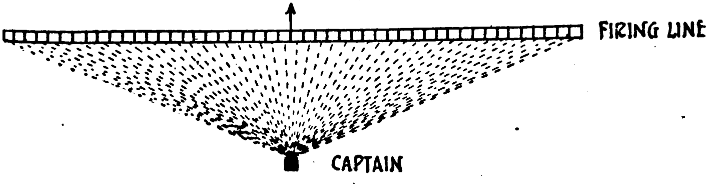


Fig. 133

firing line—the means by which, the medium *through* which he will make known his will to the men on the firing line. As stated before, because of the noise and confusion on the firing line this is no easy matter. The ideal way would be for the company commander to control the company by communicating direct with every man on the firing line, as graphically shown on the following page:

However, in the noise and confusion of battle it would be utterly impossible for all the men to hear the captain's voice. Experience shows that from 20 to 35 rifles are as many as one leader can control. The captain, must, therefore, control the company through the platoon commanders—that is to say, he *actually directs* the fire and the platoon commanders, assisted by the squad leaders, *actually control it.* In other words, the captain communicates with the men on the firing line, he makes his will known to them, through his platoon commanders, as graphically shown in this diagram:

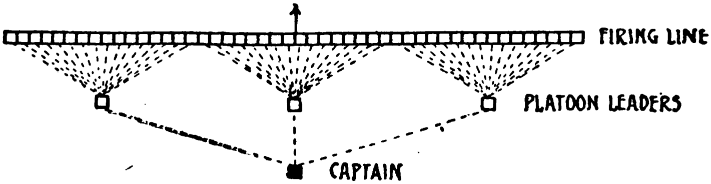


Fig. 134

However, in order for our system of communication to be successful, each and every man, as stated above, must know and do his part and endeavor all he can to help the others. If this is done, then the different parts and elements of the company will dove-tail and fit into one another, resulting in a complete, homogeneous whole, in the form of an efficient, pliable, manageable instrument in the hands of the company commander. And this is the object, the result, sought by practice and instruction in field firing, and which will be obtained if the captain, the platoon leaders, the squad leaders, the file closers, the musicians, and the privates, will perform the following duties and functions:

411. The Captain. *(Fire direction.)*

The captain *directs* the fire of the company or of designated platoons. He designates the target, and, when practicable, allots a part of the target to each platoon. Before beginning the fire action he determines the range, announces the sight setting, and indicates the class of fire to be employed and the time to open fire. Thereafter, he observes the fire effect, corrects material errors in sight setting, prevents exhaustion of the ammunition supply, and causes the distribution of such extra ammunition as may be received from the rear. (I. D. R. 249.)

Having indicated clearly what he desires the platoon leaders to do, the captain avoids interfering, except to correct serious errors or omissions. (I. D. R. 240.)

412. The Platoon Leaders. *(Fire direction.)*

In combat the platoon is the *fire unit.* (I. D. R. 250.)

Each platoon leader puts into execution the commands or directions of the captain, having first taken such precautions to insure correct sight setting and clear description of the target or aiming point as the situation permits or requires; thereafter, he gives such additional commands or directions as are necessary to exact compliance with the captain's will. He corrects the sight setting when necessary. He designates an aiming point when the target cannot be seen with the naked eye.

In general, *platoon leaders* observe the target and the effect of their fire and are on the alert for the captain's commands or signals; they observe and regulate the rate of fire. (I. D. R. 252.)

413. **The Guides** watch the firing line and check every breach of fire discipline.

414. **The Squad Leaders** transmit commands and signals when necessary, observe the conduct of their squads and abate excitement, assist in enforcing fire discipline and participate in the firing.

Every squad leader should place himself just a little in advance of the rest of his squad and by occasionally glancing to the right and left, observe how the men of their squads are doing—whether they are firing at the proper objective, if the sights are apparently properly adjusted, if they are firing too rapidly, etc. After each shot the squad leader should look toward his platoon leader, and then glance to his right and left to observe his men, and then load and fire again.

415. **The Musicians** assist the captain by observing the enemy, the target, and the fire effect, by transmitting commands or signals, and by watching for signals. (I. D. R. 235.)

416. **The Privates** will take advantage of cover, exercise care in setting the sights and delivering fire; be on the constant lookout for orders from their leaders; always aim deliberately; observe the enemy carefully, increasing the fire when the target is favorable and ceasing firing when the enemy disappears; not neglect a target because it is indistinct; not waste ammunition, but be economical with it; if firing without a leader to retain their presence of mind and direct an efficient fire upon the proper target.

417. **Distribution of Fire.** The distribution of fire over the entire target is of the greatest importance; for, a section of the target not covered by fire represents a number of the enemy permitted to fire coolly and effectively. So, remember that all parts of the target are equally important, and care must be taken that the men do not neglect its less visible parts.

The captain allots a part of the target to each platoon, or each platoon leader takes as his target that part which corresponds to his position in the company. Every man is so instructed that he will fire on that part of the target which is directly opposite him.

If the target cannot be seen with the naked eye, platoon leaders select an object in front of or behind it, designate this as the aiming point, and direct a sight-setting which will carry the fire into the target. The men aim at the good aiming point or line, but with such an increased or decreased sightsetting, as the case may be, that the bullets will fall on the target instead of on the aiming point.

Distribution of fire is assured by dividing the whole target assigned the company into definite parts or sectors, and allotting these parts or sectors to the various platoons. And, of course, the whole of the target must be kept under fire while the company is advancing. This may be accomplished by one of two methods:

LESSON 13

418. **Overlapping Method.** In this method each sector (target) is covered by more than one fire unit. For example, in a company of four platoons the entire company sector would be divided in two parts, the right part being covered by the first and second platoons and the left part by the third and fourth platoons. When the first platoon ceases fire to advance, the second platoon would replace the lost rifles by firing faster. With three platoons the company sector would be divided into two parts, one being assigned to each flank platoon and the whole company sector to the center platoon. When the first platoon advanced, the center platoon would cover its target, both the center and third platoons increasing their rate of fire. With two platoons, each would cover the whole company sector.

419. **Switch Method.** The company is divided into a number of parts, one less than the number of platoons in the company. One platoon is designated as the ''switch,'' and swings into fire automatically into that sector from which the fire of its assigned unit is withdrawn. For example, with four platoons, and platoon rushes to start from the right, the company sector is divided into three parts assigned to the first, second and third platoons, the fourth being the ''switch.'' When number 1 ceases

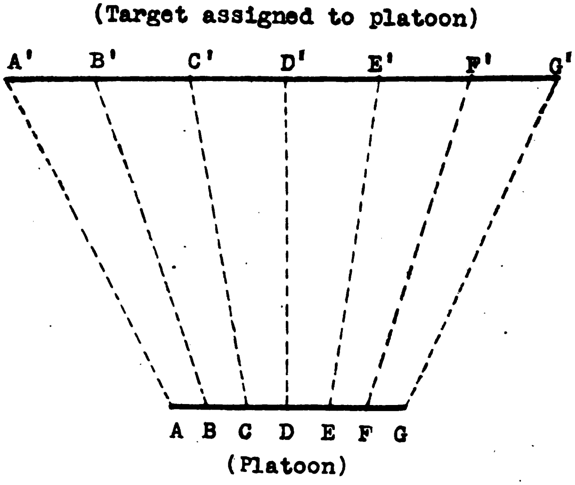


Fig. 135

fire to advance, No. 4 fires at No. 1's target; when No. 2 ceases to fire, No. 4 fires at No. 2's target, then at No. 3's target, and finally No. 4 advances.

420. **Individual instruction in fire distribution.** Every man should be thoroughly drilled, instructed and trained always to *fire at that part of the hostile target which corresponds to the position he occupies in his platoon.* That is to say, if on the right of his platoon, he fires at the right (as he faces it) of the hostile target; if in the right center of his platoon, he fires at the right center (as he faces it) of the target, and so on. This is represented by the following diagram, the points A′, B′, C′, etc., representing the parts of the hostile target at which the men occupying the positions A, B, C, etc., in their platoon, would fire:

421. **Designation of target.** It is very important that the commanders should be able to describe the objectives to be attacked and the sectors* to be defended, and that individual soldiers should be able to understand and transmit to other soldiers such descriptions. Within the squad, target designation implies ability on the part of the squad leader to understand and transmit to his squad the target designation received from his platoon leader, and also ability on his own part to designate a target intelligently; within the platoon, target designation implies ability on the part of the platoon leader to understand the company commander's designation of the target and to transmit that designation to his platoon in such manner as to insure an equal distribution of its fire within the sector assigned to it; within the company, target designation implies ability on the part of the company commander to designate the targets into which the company sector is divided in such manner that the platoon leaders will have no trouble in understanding him. It also implies ability on the part of the company commander to change the objectives or sectors of his platoons, and his ability to cover the whole target of the company during a forward movement of a part of the company, by the so-called "switch" or the "overlapping" method, or by any other method which is practicable and accomplishes the desired end. Targets should be designated in a concise, prompt, unmistakable manner, but, as we all know, it is not always an easy matter to describe the location of an object, especially if the object be not conspicuous or readily recognized. This is due to two reasons: First, the unit commander is likely to indulge in vague talk instead of accurate description, and, second, even if correct terms are used, it is more than likely that all members of the firing line will not be able to grasp the idea, because the commander will be using expressions which, although understood by himself (in some cases perhaps due to the fact that he is looking at the objective), they will not be clear to the men. The secret of prompt, accurate and concise designation of a target lies in the use of simple words and terms with which both the unit commander and the men on the firing line are thoroughly familiar.

Of course, if the target be distinct and clearly defined, it can easily be designated by name, as for example, "That battery on the hill just in front of us," "Cavalry to our right front," etc.

Generally the designation of a target, if not conspicuous or readily recognized, will include:

1. A statement of what the target is, or its appearance (shape, color, size, etc.).

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* In attack the target is called "objective"; in the defense, "sector."

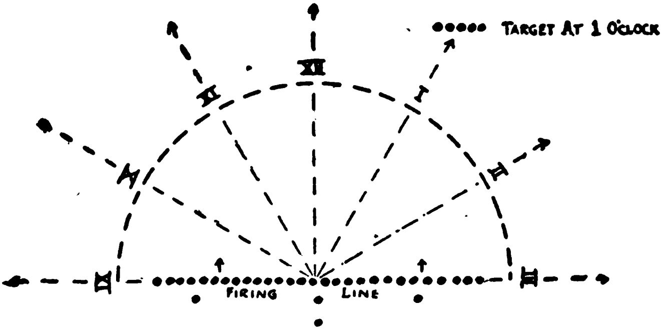
2. Where the target is with reference to some easily recognized reference point.

3. How wide the company sector is.

The following systems of target designation are used at the School of Musketry. Each has its limitations, defects and advantages, under various conditions of ground, etc. A wise selection of one or a combination of two or more, is a material factor in efficiency.

422. **Horizontal Clock Face System.** (Used with visible, distinct targets.)

SYSTEM	EXAMPLE
1. Announce direction.	"At one o'clock."
2. Announce range.	"Range 1000."
3. Announce objective.	"A troop of cavalry dismounted."



HORIZONTAL CLOCK FACE SYSTEM

Fig. 136

PROCEDURE:

1. All look along the line pointing toward one o'clock of a horizontal clock face whose center is at the firing point, and whose 12 o'clock mark is directly perpendicular to the front of the firing line.

2. All look at a point about 1000 yards away on the one o'clock line, and

3. At 1000 yards on the one o'clock line find the objective.

423. **Vertical Clock Face System.** (Used with small or indistinct targets.)

SYSTEM	EXAMPLE
1. Announce the general direction of the reference point.	"To our right front" (or "At two o'clock").
2. Designate as a reference point the most prominent object in the zone indicated.	"A stone house with two chimneys."
3. Announce the position of the target with respect to the reference point.	"At three o'clock."

4. Announce the range.	"Range 1000."
5. Announce the objective.	"A hostile patrol of four men."

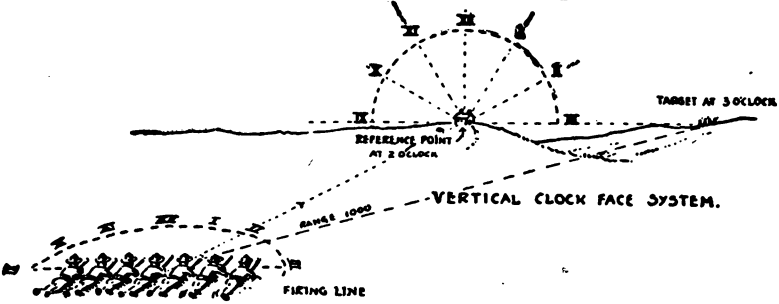

XII
XI
I
X
II
IX
III
TARGET AT 3 O'CLOCK
REFERENCE POINT AT 2 O'CLOCK
VERTICAL CLOCK FACE SYSTEM.
RANGE 1000
FIRING LINE

Fig. 137

PROCEDURE:

1. All men look to their right front (or along the two o'clock line).

2. The reference point (stone house) is found in the indicated direction.

3. A clock face (vertical) is imagined centered on the reference point, and the men look along the line leading from the clock center through three o'clock, and

4. 1000 yards from the firing point.

5. Find the hostile patrol.

424. **Finger System.** (Used with indistinct or invisible targets and to define sectors.)

(By one "Finger" we mean the amount of frontage that one finger, held vertically, will cover, the arm being extended horizontally to its full length. In the average case this amount of frontage covered is about 1/20 of the range. For instance, at a range of 1000 yards, one "Finger" will cover fifty yards of the sector. The same result will be obtained by using the rear-sight leaf in the position of aiming.)

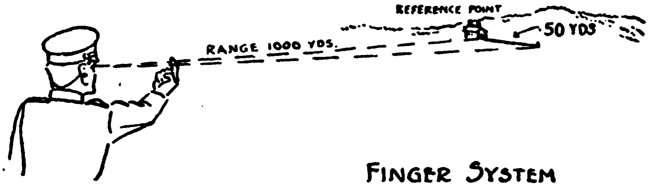

REFERENCE POINT
50 YDS
RANGE 1000 YDS.
FINGER SYSTEM

Fig. 138

SYSTEM	EXAMPLE
1. Announce direction to reference point as in the vertical clock face system.	"To our right front, at 1000 yards."
2. Announce reference point.	"A stone house with two chimneys."
3. Announce angular distance and direction from the reference point to the target.	"Four o'clock, three fingers."

424 (contd.)

4. Announce range.	"Range 1000."
5. Announce objective.	"A skirmish line alongside of the fence, length about two fingers, right at the dark bush."

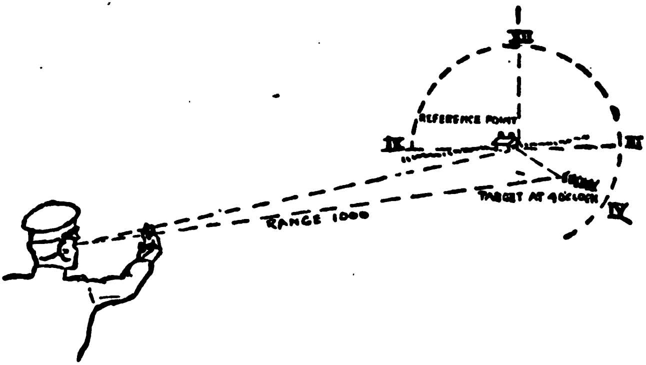


Fig. 139

PROCEDURE:

The reference point is found as explained, and the vertical o'clock line upon which the target will be found. The soldiers who do not see the target will extend the arm to its *full extent* palm of the hand upward, finger held vertically with one side of the hand "against" the reference point. The target will be found on the four o'clock line, and touching the third finger, at 1000 yards distance, its right flank at the bush and its left flank about 100 yards farther to the right.

The following case will illustrate more concretely the use of the "Finger" system:

There is a red house about ¾ mile to our front, and to the right of this house and a hundred yards or so to its rear, there is a line of trenches that can be seen with the aid of field glasses, but the trenches are difficult to locate with the unaided eye. There is no prominent landmark in the direction of this line of trenches, or on either flank, except the red house mentioned. The company commander locates the flanks of the line of trenches through his field glasses; he then extends his arm forward horizontally its full length, palm up, raises the fingers of his hand and, sighting on the line of trenches, finds that the trench line has a length of four "finger widths," and that the flank of the line nearest the red house is three "finger widths" from it. He decides to divide the line into two sections of two "fingers" each, and assign one section to each of his two platoons. He then calls his platoon leaders (and range finders, if necessary), and says, for instance: "Center of objective, five to the right of that red house, First Platoon, two fingers; Second Platoon, two fingers." The two platoon leaders then estimate the range and give the company commander their estimates independently. The company commander also estimates the range, and, taking the average, then announces the range, say 1300 yards, after which the platoon leaders return to their platoons, and give, for instance, these instructions: "The target is a line of trenches four 'fingers' long, and about 1300 yards away; the center of the target is five 'fingers' to the right of that red house, at about 10 o'clock. We are to fire at the two fingers on the right of the center and the Second Platoon will look after the two fingers on the left of the center." (The leader of the Second Platoon gives similar instructions.)

Every man in the platoon figures out the platoon objective and endeavors to fix it with respect to some features of the ground so that he will be able to pick it up promptly after his platoon starts to advance. After fixing well in his mind the platoon objective, he figures out what part of it belongs to his squad, and then selects that portion of the squad objective corresponding to his position in the squad. If during the advance, his particular portion of the target should become hidden from view, he will fire on the nearest portion of the trench line, returning to his own part as soon as it becomes visible.

425. **Communication.** After the company has been committed to the fire fight, verbal commands cannot be heard, and it is well nigh impossible even to secure attention to signals. It is, therefore, most important that we should train and practice the company as much as possible during time of peace in the rapid and accurate transmission of orders and signals along the firing line.

Matter upon which a commander would need to communicate with his subordinates, in addition to tactical orders, would generally be confined to:

(a) Changes of elevation and deflection.

(b) Changes in the apportionment of the target among the subdivisions.

(c) Changes within the limits of the sector, or objective.

(d) Changes in the rate of fire.

(e) And rarely change of target from one within to one without the limits of the objective or sector.

426. **Procedure.** The following is given merely as a concrete example of the procedure that might be followed in **certain ring exercises**—it will not, of course, apply to all cases; it is merely given as a concrete illustration of what might actually be done under certain conditions.

Company Commander. On receiving his instructions from the officer in charge of the exercise, the company commander returns to his company, keeping track of the changing aspect of his target as he does so. Arriving at the center of his company, he is met by his platoon leaders, and range finders, who have assembled in his absence. The company commander says:

"The target is a line of skirmishers, visible in part. It may be seen between us and that long line of green bushes which begins one finger to the right of that red water tower at 11 o'clock and it extends well beyond the bushes both to the right and to the left."

(At this point the range finders begin their estimation and the captain pauses until the senior range finder, or other designated person automatically announces the average estimate of the range, saying for example, "Range 1100.")

The captain then resumes, saying:

"The sector assigned to this company is three fingers long and extends from that group one finger to the right of the water tower, to a point four fingers to the right of the tower. Each platoon will cover the entire company sector. Range ten-fifty and eleven-fifty. Fire at will at my signal. Posts."

Platoon Leaders. The platoon leaders then hasten to the center of their platoons and "put into execution the commands and directions of the captain, having first taken such precautions to insure a correct sight-setting and clear description of the aiming point as the situation permits or requires" (Par. 251 I. D. R.), by saying:

Target: The target is a line of skirmishers about 1100 yards to our front, only parts of which are visible.

Reference point: That long line of bushes about 1300 yards to our left front. The company sector is three fingers long and lies between us and that reference point, extending one-half finger beyond each end of the bushes.

Aiming point: The bottom of the lines of bushes.

Range: 1050 and 1150.

As soon as the range is announced each front rank man sets his sight at 1050 and each rear rank man at 1150. Squad leaders assure themselves that sights are set and that the men of their squads understand the aiming point and sector and then raise their hand as a signal that all are ready. Similarly, the platoon leaders raise their hands to show that all of the squads are ready, and when the captain sees that all of his platoons are ready, he signals to begin firing. At the captain's signal, each platoon leader commands: *"Fire at Will."*

Firing then begins at a rate of about 3 shots per minute. (Par. 14, I. D. R.)

427. **Points to Be Borne in Mind.** Bear in mind the following points in the solution of field firing problems:

1. Combine sights should, as a rule, be used where the estimated range is 1000 yards or more, the two ranges being 50 yards on each side of the estimated range, the even numbers firing at one range, the odd numbers at the other.

2. When aiming points are chosen they should be clearly described. Bushes, bunches of lines of grass, fence posts, etc., should not be designated as aiming points when clear and more definite aiming points are available. The choice of the best of several possible aiming points is of great importance.

3. Have some system of simple signals whereby you may know when all your men are ready to begin firing. Otherwise, you may begin the firing before some of your men have their sights set and before they understand the sector and point of aim. For example, let each squad leader raise his right hand when his squad is ready, and each platoon leader his right hand when his platoon is ready.

4. Platoon leaders must always be sure to designate a definite aiming point. Remember that in the case of an indistinct target, the company commander describes the TARGET to the platoon leaders, and they in turn announce the AIMING POINT. Having seen and located the target, the platoon leader must examine the terrain at, in front of and behind the target, and choose the aiming point for his men. He must then determine the proper sight-setting for that particular aiming point. He then announces both aiming point and range.

5. Instead of describing a sector as, for example, extending so many yards (or so many "fingers") north from the reference point, it is better

to describe it as extending from the reference point northward for a definite distance, as "To that tall red house."

The last method is the best, because it leaves no room for guessing on the part of subordinates. So, remember it is always best, when possible, to define the limits of sectors physically, as, extending, for example, from "That house to that windmill," etc.

6. When acting as part of the battalion, always be sure to designate someone (usually one of the musicians) to watch for signals from the battalion commander, and don't fail to repeat back all signals.

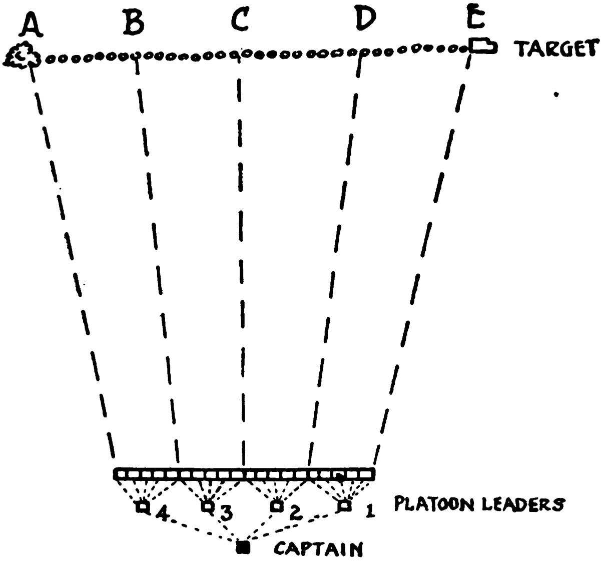


Fig. 140

7. In advancing by rushes, always allow sufficient time between rushes to recover the loss in fire caused by the cessation of fire, In other words, the next rear unit should not start forward until the one that has just advanced has resumed an effective fire.

8. Remember that in all field firing problems the distribution of hits has big weight. Consequently, it should be definitely understood beforehand, that, in the absence of any target designation by the company commander, each platoon leader will look after the sector corresponding to his front, and that each man will fire at the part of the sector corresponding to his front. Should the targets in a given sector disappear, then the platoon leader covering that sector will at once switch his fire to the adjoining sector until the reappearance of the targets in his own sector. For example, let us suppose the company sector, A-B (the company being on the defense and not advancing) is divided into four parts A-B, B-C, C-D and

D-E. Platoon No. 1 would look after everything that appeared in D-E; No. 2, after everything that appeared in C-D; No. 3, everything that appeared in B-C; and No. 4, after everything that appeared in A-B.

Should the target suddenly disappear from D-E, then No. 1 would switch his fire over to C-D, and keep it there until the target reappeared in D-E, and if the targets disappeared from C-D, before reappearing in D-E, then both No. 1, and No. 2, would switch their fire cones to A-C.

428. Exercises. The following exercises for the elementary training of individuals and squads were used with success by the troops mobilized on the Texas border:

TARGETS

1. The target will be represented by individual soldiers.

2. With reference to their visibility, the battlefield will present three classes of targets:

(a) Those which are visible throughout.
(b) Those which are visible in part.
(c) Those which are invisible, but whose location might be described.

Targets will be arranged to simulate one of the classes enumerated. Instruction will begin with simple exercises in which the target presented is plainly visible, and represents only the objective of the unit undergoing instruction. It should progress to the more difficult exercises in which the target is invisible and the line of figures is prolonged to include the objective of units on the right or left.

3. The limits of indistinct targets may be shown to unit commanders by the use of company flags. These flags, however, will be withdrawn from sight before a description of the target or estimate of the range is attempted, and before anyone but the commander of the unit undergoing instruction sees their location.

4. At the conclusion of each exercise in which flags are used to mark the limits of the target or its subdivisions, they should be displayed, in order that any existing errors may be readily pointed out.

5. To determine proficiency in target designation, the instructor will provide a sufficient number of rifles, placed on sand bags or other suitable rests, and require those charged with fire direction and control to sight them at the limits of their objective. An inspection by the instructor will at once detect errors. Similarly, in those exercises in which all the members of the firing unit participate, the percentage of rifles aimed at the correct target may be determined.

6. In these exercises no method of communication will be permitted that could not be used under the conditions assumed in the problem.

EXERCISE NO. 1—RANGING

Object: To train the individual to set his sight quickly and accurately for the announced range and windage; and to accustom leaders to the giving of windage data.

Situation: The company is formed in single rank at the ready with rear sight set at zero and the slide screw normally tight.

Action: The range and windage are announced, sights are set accurately in accordance therewith and as rapidly as may be, each man coming to port arms immediately upon completing the operation.

Time: Time is taken from the last word of the command.

Standard: Sights should be correctly set within 15 seconds.

Note: Of the two elements, time and accuracy, accuracy is the more important.

Par. 411, I. D. R., implies complete use of the rear sight, that is, utilization of the wind gauge, and sight setting to the least reading of the rear sight leaf, i. e., 25 yards. Sight setting therefore in this exercise should include, more often than not, ''fractional ranges'' and windage data.

EXERCISE NO. 2—RANGING

Object: To familiarize officers and noncommissioned officers in the use of an auxiliary aiming point.

Situation: Two men with the company flags are stationed to mark the enemy's invisible position. This position should be suitably located with reference to a practicable aiming point.

Action: The markers are signalled to display their flags. An officer or noncommissioned officer is called up and the enemy's position is pointed out. The flags are then withdrawn and the officer or noncommissioned officer selects an auxiliary aiming point and gives his commands for firing at that point.

EXERCISE NO. 3—TARGET DESIGNATION

Object: To train the individual soldier to locate a target, from a description solely. To do so quickly and accurately and fire thereon with effect, and to train officers and noncommissioned officers in concise, accurate and clear description of targets.

Situation: The men are so placed as not to be able to see to the target. The instructor places himself so as to see the objective.

Action: The instructor, to one man at a time, describes the objective, and directs him to fire one simulated round. The man immediately moves so as to see the target, locates it, estimates the range and fires one simulated shot.

Standard: For ranges within battle sight, time 20 seconds; beyond battle sight, time 30 seconds. Not more than 15% error in the estimation of the range. Objective correctly located.

Note: Arrangements made so that the description of the target is heard by only the man about to fire. After firing the man will not mingle with those waiting to fire.

EXERCISE NO. 4—TARGET DESIGNATION

Object: To train the squad leader in promptly bringing the fire of his squad to bear effectively upon the target presented. To train the individuals of a squad to fire effectively from orders of the squad leader and automatically to obtain effective dispersion.

Situation: The squad is deployed, the squad leader being in the firing line. Position prone. A sighting rest is provided for each rifle.

Action: Upon the appearance of the target the squad leader gives the necessary orders for delivering an effective fire. The men under these orders sight their rifles and then rise. The instructor then examines the position and sighting of each rifle.

Time: Time is taken from the appearance of the target until the last man has risen.

428 (contd.)

Target: A squad of men to outline a partially concealed enemy emerges from cover, advances a short distance and lies down.

Standard: 90% of the rifles should be sighted in conformity with the orders of the squad leader and should evenly cover the whole front of the objective. The squad leader's estimate of the range should not be in error over 15%.

Note: The squad leader should not, in general, be allowed to divide the target into sectors but to obtain distribution by training the men to fire at that portion of the objective directly related to the position they occupy in their own line. The exercise should be repeated with the squad leader in rear of the squad and not firing. As to this, it is to be noted that Musketry School experiments prove that in small groups the directed fire of say seven (7) rifles is more effective than the partially undirected fire of eight rifles obtained when the group leader is himself firing.

EXERCISE NO. 5—COMMUNICATION

Object: To teach prompt and accurate transmission of firing data without cessation of fire, and also to teach automatic readjustment of fire distribution.

Situation: A squad deployed in the prone position and with sighting rests, is firing at a designated target.

Action: A squad with sights set at zero is deployed and brought up at the double time into the intervals of the firing line and halted. The firing data is transmitted to them without cessation of fire. At the command **Rise**, given 20 seconds after the command **Halt**, the first squad rises and retires a short distance to the rear. At the same time, the supports cease fire and adjust their rifles in the rests so as to be aimed at the target as they understand it. They then rise and their rifles are examined by the instructor for range and direction.

Standard: 80% of the rifles should be sighted according to the transmitted data and aimed according to the principles of fire distribution.

Target: One target equal to a squad front, which is increased to two squads prior to the arrival of the supports in the firing line.

Note: This exercise should be repeated with the supporting squad reenforcing on a flank. To determine whether the original squad is able to keep its assigned sector during an advance, this exercise should be repeated, the supports being thrown in after a series of short advances by the original squad. Care should be exercised to prevent the transmission of firing data in a manner under which service conditions would be impracticable. (See Exercise No. 6.)

EXERCISE NO. 6—COMMUNICATION

Object: To train the squad leader in receiving and transmitting instructions by visual signals alone.

Situation: A squad with its leader in the firing line is deployed in the prone position firing at will.

Action: The instructor, without sound or other cautionary means, signals (visually) to the squad leader at various intervals to,

First: Change elevation.
swing the fire to the right or left.
suspend the firing.
etc., etc.

The squad leader, upon receiving a signal, causes his squad to execute it without verbal command, or exposing himself.

Time: No specified time limit.

Standard: The squad leader should fire with his squad, but after each shot should look towards his platoon leader for any signal, then observe the fire and conduct of his men, then, after glancing again at his platoon leader, fire again. This the squad leader should do without exposing himself. By lying about a head's length ahead of his men he can see his squad front. In transmitting orders he can accomplish it by nudging the men on his right and left and signaling to them with his hand.

Note: This exercise is essential to prepare men for the deafening noise of a heavy action when speech or sound signals are largely futile.

EXERCISE NO. 7—FIRE DISCIPLINE

Object: To train men to carry out strictly the fire orders given them, and to refrain from starting, repeating or accepting any change therefrom without direct orders from a superior.

Situation: A squad deployed in the prone position.

Action: While the squad is firing at an indistinct but specified target, another and clearly visible target appears in the vicinity of the first target but not in the same sector. Upon the appearance of this second target, the instructor sees that the men continue firing at the assigned target. The corporal should check any breach of fire discipline.

Note: Variations of this exercise should be given to test the fire discipline of the men in other phases, such as rate of fire (Par. 147, I. D. R.), etc.

LESSON 14

MILITARY ORGANIZATION

NOTE: The Military Organization here given is that in effect at the time the United States declared war on Germany. For obvious reasons, the present organization of our land and naval forces cannot be published.

429. The tabulations that follow are based on the National Defense Act of June 3, 1916, and on the Tables of Organization.

Composition of Infantry Units

Regiment	Battalions (3)	Companies			
Each	Each	Infantry (12)	Headquarters (1)	Machine Gun (1)	Supply (1)
1 Colonel 1 Lt. Colonel 3 Majors 15 Captains 16 1st Lieuts. 15 2nd Lieuts. — 51 — 1 Hdqrs. Co. 1 Machine Gun Co. 1 Supply Co. 12 Infantry Cos., organized into 3 battalions of 4 companies each. *Attached* 1 Major, Med. Dept. 3 Capts., or 1st Lieuts. Med. Dept. 1 Chaplain	1 Major 1 1st Lieut., mounted (battalion adjutant) 4 companies *Attached* 1 Battalion Sergt. Major (from Hdqrs. Co.)	1 Captain 1 1st Lieut. 1 2nd Lieut. — 3 — 1 1st Sergt. 1 Mess Sergt. 1 Supply Sergt. 6 Sergts. 11 Corpls. 2 Cooks 2 Buglers 1 Mechanic 19 Pvts. (1st Class) 56 Pvts. — 100 — (The President may add 2 Sergts., 6 Corpls., 1 Mechanic, 9 Pvts., 1st Class, and 31 Pvts.—total, 49)	1 Captain, mounted, — (Regtl. Adjt.) 1 Regtl. Sergt. Major mounted. 3 Batln. Sergts. Major, mounted. 1 1st Sergt. (drum major) 2 Color Sergts. 1 Mess Sergt. 1 Supply Sergt. 1 Stable Sergt. 1 Sergt. 2 Cooks 1 Horseshoer 1 Band leader 1 Asst. Band leader 1 Sergt. bugler 2 Band Sergts. 4 Band Corpls. 2 Musicians, 1st Class 4 Musicians, 2nd Class 18 Musicians, 3rd Class 4 Pvts., 1st Class, 12 Pvts., Mtd. — 58	1 Captain, Mtd. 1 1st Lt., Mtd. 2 2nd Lts., Mtd. — 4 — 1 1st Sergt., Mtd. 1 Mess Sergt. 1 Supply Sergt., Mtd. 1 Stable Sergt., Mtd. 1 Horseshoer 5 Sergeants 6 Corporals 2 Cooks 2 Buglers 1 Mechanic 8 Pvts., 1st Class 24 Privates — 53 — (The President may add 2 Sergts., 2 Corpls., 1 Mechanic, 4 Pvts., 1st Class and 12 Pvts. total, 21)	1 Captain, Mtd. 1 2nd Lt., Mtd. — 2 — 3 Regtl. Supply Sergts., Mtd. 1 1st Sergt. Mtd. 1 Mess Sergt. 1 Stable Sergt. 1 Corpl. Mtd. 1 Cook 1 Saddler 1 Horseshoer 1 Wagoner for each authorized wagon of the field and combat train.

Transportation, orderlies, etc. To Hdqrs. Co., 27 riding horses; to Machine Gun Co., 6 riding horses and 8 pack mules; to Supply Co., 3 riding horses; to each Battalion Hdqrs., 6 riding horses, 1 wagon, 4 draft mules, and 2 mounted orderlies; to Regtl. Hdqrs., 5 riding horses.

Composition of Cavalry Units

Regiment	Squadrons (3)	Troops			
Each	Each	Cavalry (12)	Headquarters (1)	Machine Gun (1)	Supply (1)
1 Colonel 1 Lt. Colonel 3 Majors 15 Captains 16 1st Lieuts. 16 2nd Lieuts. — 52 — 1 Hdqrs. Troop 1 Machine Gun Troop 1 Supply Troop 12 Troops organized into 3 squadrons of 4 troops each *Attached* 1 Major, Med. Dept. 3 Capt., or 1st Lieuts., Med. Dept. 1 Chaplain	1 Major 1 1st Lieut. squadron adjutant 4 Troops *Attached* 1 Squadron Sergt. Major (from Hdqrs. Troop)	1 Captain 1 1st Lieut. 1 2nd Lieut. — 3 — 1 1st Sergt. 1 Mess Sergt. 1 Supply Sergt. 1 Stable Sergt. 5 Sergts. 8 Corpls. 2 Cooks 2 Horseshoers 1 Saddler 2 Buglers 10 Pvts. (1st Class) 36 Pvts. — 70 — (The President may add 10 Pvts. (1st Class) and 25 Pvts. total 35.)	1 Captain, Regtl. Adjt. — 1 Regtl. Sergt. Major 3 Squadron Sergts. Major 1 1st Sergt. (Drum Major) 2 Color Sergts. 1 Mess Sergt. 1 Supply Sergt. 1 Stable Sergt. 1 Sergt. 2 Cooks 1 Horseshoer 1 Saddler 2 Pvts. (1st Class) 9 Pvts. 1 Band leader 1 Asst. Band leader 1 Sergt. Bugler 2 Band Sergts. 4 Band Corpls. 2 Musicians, 1st Class 4 Musicians, 2nd Class 13 Musicians, 3rd Class — 54 — (The President may add 2 Sergts., 5 Corpls., 1 Horseshoer, 5 Pvts. 1st Class, 10 Pvts. total 31)	1 Captain 1 1st Lieut. 2 2nd Lieuts. — 4 — 1 1st Sergt. 1 Mess Sergt. 1 Supply Sergt. 1 Stable Sergt. 2 Horseshoers 5 Sergts. 6 Corpls. 2 Cooks 1 Mechanic 1 Saddler 2 Buglers 12 Pvts., 1st Class 35 Pvts. — 70 — (The President may add 3 Sergts. 2 Corpls., 1 Mechanic, 1 Pvt. 1st Class, 14 Pvts, total, 21)	1 Captain Regtl., Supply Officer 2 2nd Lieuts. — 3 — 3 Regtl. Supply Sergts. 1 1st Sergt. 1 Mess Sergt. 1 Stable Sergt. 1 Corpl. 1 Cook 1 Horseshoer 1 Saddler 1 Wagoner for each authorized wagon of the field and combat train.

Transportation, orderlies, etc. To each Squadron Hdqrs., 6 or 7 riding horses and 2 orderlies; to each squadron, 292 riding horses, 1 wagon and 4 draft mules.

Composition of Field Artillery Units

Regiment	Battalion (Gun or Howitzer)	Battery (Gun or Howitzer)	Headquarters Company of Regt., of 2 battalions	Supply (1) Regt. of 2 Batlns.
Each	Each	Each		
1 Colonel 1 Lt. Colonel 1 Captain 3 1 Hdqrs. Co., 1 Supply Co., And such number of guns and howitzer battalions as the President may direct. *Attached* 1 Major, Med. Dept. 3 Capts., or 1st Lieuts., Med. Dept. 1 Chaplain	1 Major 1 Captain 2 Batteries as follows: Mountain artillery battalions and light artillery gun or howitzer battalions serving with the field artillery or Infantry divisions shall contain three batteries; horse artillery battalions and heavy field artillery gun or howitzer battalions shall contain two batteries.	1 Captain 2 1st Lieuts. 2 2nd Lieuts. 5 1 1st Sergt. 1 Supply Sergt. 1 Stable Sergt. 1 Mess Sergt. 6 Sergts. 13 Corpls. 1 Chief Mechanic 1 Saddler 2 Horseshoers 1 Mechanic 2 Buglers 3 Cooks 22 Pvts. 1st Class 71 Pvts. 125 When no enlisted men of the Quartermaster Corps are attached for such positions there shall be added to each battery of mountain artillery: 1 Packmaster Sergt. 1st Class	1 Captain 1 1st Lieut. 2 1 Regtl. Sergt. Major 2 Batln. Sergts. Major 1 1st Sergt. 2 Color Sergts. 1 Mess Sergt. 1 Supply Sergt. 1 Stable Sergt. 2 Sergts. 9 Corpls. 1 Horseshoer 1 Saddler 1 Mechanic 3 Buglers 2 Cooks 5 Pvts. 1st Class 15 Pvts. 1 Band leader 1 Asst. Band leader 1 Sergt. Bugler 2 Band Sergts. 4 Band Corpls. 2 Musicians, 1st Class 4 Musicians, 2nd Class 13 Musicians, 3rd Class 76	1 Captain 1 1st Lieut. 2 2 Regtl. Supply Sergts. 1 1st Sergt. 1 Mess Sergt. 1 Corpl. 1 Cook 1 Horseshoer 1 Saddler 2 Pvts. 1 Wagoner for each authorized wagon of the field train. When Regt. consists of 3 Batlns. there shall be added 1-2nd Lieut. (1) 1 Regtl., Supply Sergt., 1 Pvt., 1 Wagoner for each additional authorized wagon of the field train. (The President may add 1 Corpl., 1 Cook, 1 Horseshoer, 1 saddler total 4)

Composition of Field Artillery Units (Continued)

		1 Asst. Packmaster Sergt. 1 Cargador, Corpl. (The President may add 3 Sergts., 7 Corpls., 1 Horseshoer, 2 Mechanics, 1 Bugler, 13 Pvts. 1st Class, 37 Pvts. total 64)	When a regiment consists of three battalions there shall be added to Hdqrs. Co: 1 Batln. Sergt. Major, 1 Sergt. 3 Corpls., 1 Bugler, 1 Pvt. 1st Class 5 Pvts. total 12. When no enlisted men of the Quartermaster Corps are attached for such positions there shall be added to each mountain artillery Hdqrs. Co.: 1 Packmaster, Sergt. 1st Class 1 Asst. Packmaster, Sergt. 1 Cargador, Corpl. total 3 (The President may add 2 Sergts., 5 Corpls., 1 Horseshoer, 1 Mechanic, 1 Pvt. 1st Class, 6 Pvts. total 16 to a regiment of 2 battalions; and to a regiment of 3 battalions 1 Sergt., 7 Corpls., 1 Horseshoer, 1 Mechanic, 2 Cooks. 2 Pvts. 1st Class, 7 Pvts. total 21.)	Supply Co., of Regt. of 3 Batlns. may have added the same number as given above for Regt. of 2 Batlns.

Transportation, orderlies, etc. To Battery Hdqrs., 8 riding horses; to each Battery, 24 riding horses, 88 draft horses, 1 Battery wagon, 1 Store wagon, 8 Caissons and 4 Guns.

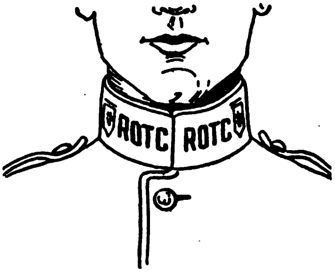


Fig. 141

430. On the collar of the coat the student wears the R. O. T. C. and the shield of his institution, or its letters.

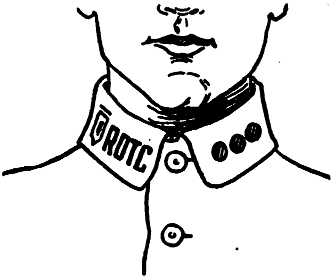
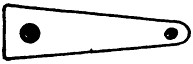


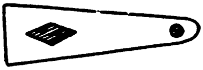
Fig. 142
Student Captain

On the collar of the shirt the student wears the R. O. T. C. and shield of his institution, with his rank on left side.

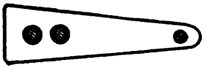
Student Insignia of Rank on Shoulder of Blouse



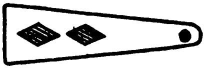
2nd Lieutenant



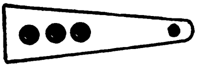
Major



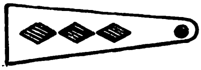
1st Lieutenant



Lieutenant Colonel



Captain



Colonel

Fig. 143

430 (contd.)

COLLAR INSIGNIA

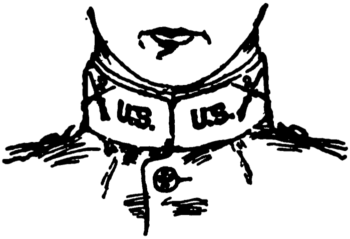


Fig. 144
Officer, U. S. A.

On the collar of the coat the officers wears the letters "U. S." and the insignia of his arm of the service—that is, crossed rifles, if an Infantryman, crossed sabers, if a Cavalryman, and so on.

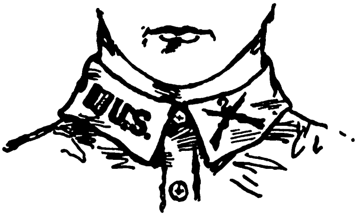


Fig. 145
Officer, U. S. A.

When wearing the olive drab shirt without coat, the insignia is worn on the collar of the shirt, as shown in the adjoining illustration.

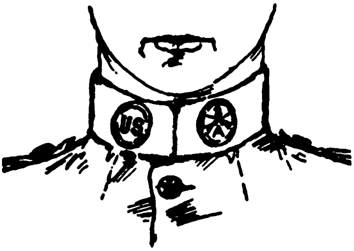
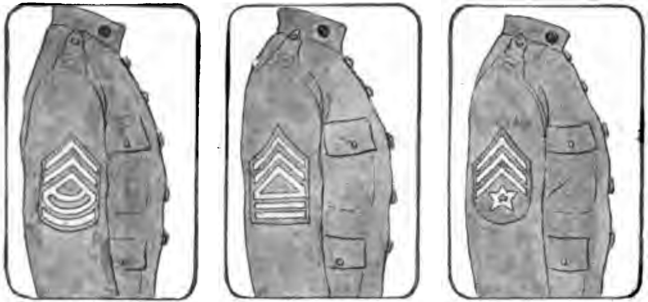


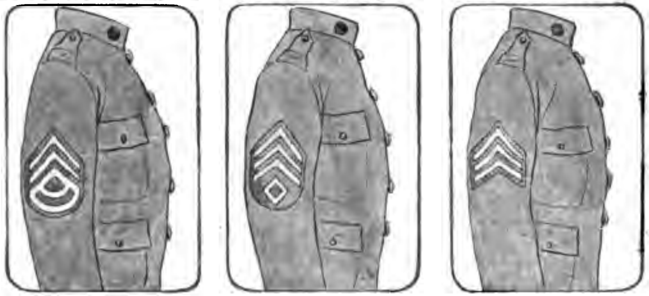
Fig. 146
Enlisted Man, U. S. A.

With either coat or olive drab shirt the enlisted man wears on the right side of the collar a bronze disk with the letters, "U. S.," and on the left side of the collar a similar disk bearing the insignia of his branch of the service, the number of his regiment, and the letter of his company.

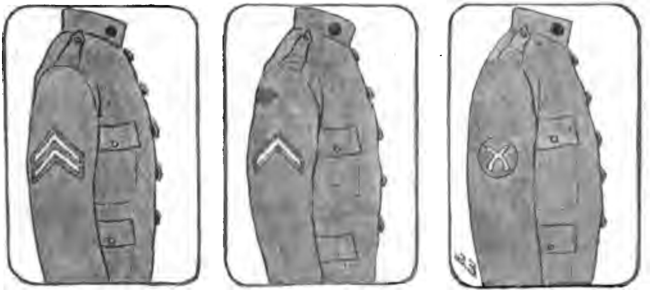
INSIGNIA OF NONCOMMISSIONED OFFICERS AND FIRST CLASS PRIVATE



Regtl. Sgt. Major
Regtl. Supply Sgt.
Color Sergeant.



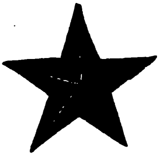
Bn. Sgt. Major
First Sergeant
Sergeant.



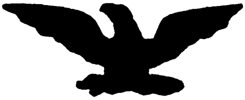
Corporal.
Lance Corporal
Pvt. 1st. Class.

Fig. 147

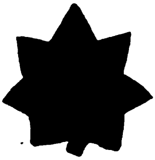
INSIGNIA OF RANK AND ITS SIGNIFICANCE



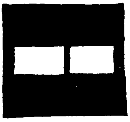
431. One star indicates a brigadier-general; two stars, a major-general; three stars, a lieutenant-general; four stars, a general.



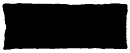
An eagle indicates a colonel.



A *silver* oak leaf indicates a lieutenant-colonel, and a *gold* oak leaf indicates a major.



A captain wears two bars.

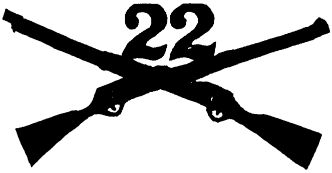


A 1st Lieutenant wears one *silver* bar; a second Lieutenant one *gold* bar.

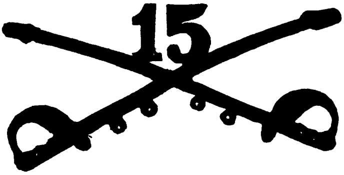
"ARMS" OR "BRANCHES" OF THE SERVICE; "DEPARTMENTS" OR "CORPS"

432. The officers and enlisted men of the Army are divided into two grand divisions called, "The Line," and "The Staff."

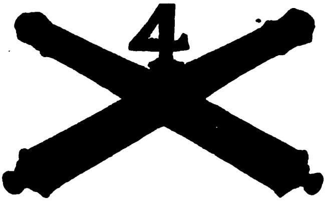
The Line does the fighting, and consists of the Infantry, Cavalry, Field Artillery, and Coast Artillery, which are called "Arms" or "Branches" of the service, the insignia of which are as follows:



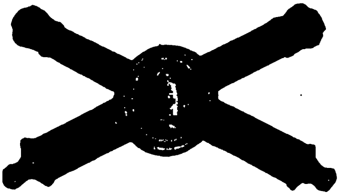
Infantry



Cavalry



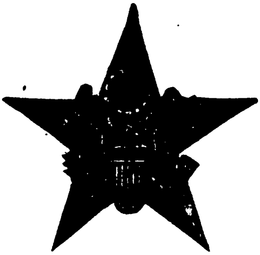
Field Artillery



Coast Artillery

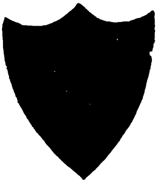
(Note: The numbers in the above insignia indicate the regiments—the 22nd Infantry, the 15th Cavalry, and the 4th Field Artillery.)

The Staff looks after the clothing, subsistence, transportation, payment, medical attendance, inspection, administration of justice, etc., and consists of certain "Departments" or "Corps," whose insignia are as follows:



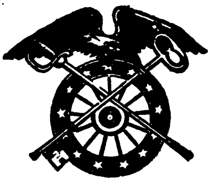
General Staff Corps

The General Staff Corps is charged with the preparation of plans for the national defense and for the mobilization of the military forces of the country in time of war.



Adjutant General's Department

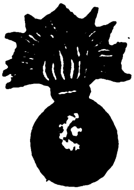
The Adjutant General's Department is the bureau of orders, correspondence and records of the Army.



Quartermaster Corps

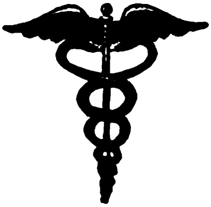
The Quartermaster Corps is charged with paying the Army, and furnishing it with subsistence, clothing, transportation, forage, light, fuel, and buildings. The Ordnance Department supplies the Army with

432 (contd.)



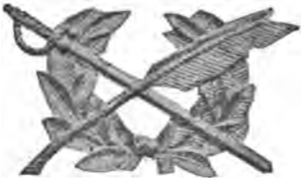
Ordnance Department

arms, equipments, ammunition, and everything else pertaining to the fighting matériel.



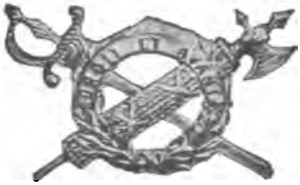
Medical Department

The Medical Department looks after the sanitation of the Army, the care of the sick and wounded, the physical examination of officers and men, and the management of the hospitals.



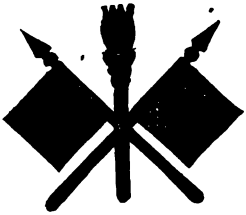
Judge Advocate General's Department

The Judge Advocate General's Department is the law department of the Army—the bureau of military justice.



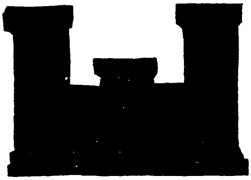
Inspector General's Department

The Inspector General's Department exercises, by inspections, general observation over all matters pertaining to the Army.



Signal Corps

The Signal Corps is charged with the aviation service of the Army, and the construction, repair, and operation of the telegraph and telephone lines and cables, radio installations, and balloon trains.



Engineer Department

The duties of the Engineering Department comprise military surveying and map-making, the construction and repair of fortifications, roads and bridges, and sapping and mining. The Department is also charged with looking after the river and harbor works of the country.

The Army consists of:

1. The Regular Army
2. Volunteers
3. National Guard
4. National Guard in Federal Service.
5. Officers' Reserve Corps
6. Enlisted Reserve Corps.

LESSON 15

MAP READING

433. **Definition of map.** A map is a representation on paper of a certain portion of the earth's surface.

A military map is one that shows the things which are of military importance, such as roads, streams, bridges, houses, depressions, and hills.

434. **Map reading.** By map reading is meant the ability to get a clear idea of the ground represented by the map,—of being able to *visualize* the ground so represented.

For some unknown reason, military map reading is generally considered a very difficult matter to master, and the beginner, starting out with this idea, seemingly tries to find it difficult.

However, as a matter of fact, map reading is not difficult, if one goes about learning it in the right way,—that is, by first becoming familiar with scales, contours, conventional signs, and other things that go to make up map making.

Practice is most important in acquiring ability in map reading. Practice looking at maps and then *visualizing* the actual country represented on the map.

435. **Scales.** In order that you may be able to tell the distance between any two points on a map, the map must be drawn to scale,—that is, it must be so drawn that a certain distance on the map, say, one inch, represents a certain distance on the ground, say, one mile. On such a map, then, two inches would represent two miles on the ground; three inches, three miles, and so on. Therefore, we may say—

The scale of a map is the ratio between actual distances on the ground and those between the same points as represented on the map.

436. **Methods of representing scales.** There are three ways in which the scale of a map may be represented:

1. By words and figures, as 3 inches=1 mile; 1 inch=200 feet.
2. By Representative Fraction (abbreviated R.F.), which is a fraction whose numerator represents units of distance on the map and whose denominator, units of distance on the ground.

For example, $\text{R. F.}=\frac{\text{1 inch (on map)}}{\text{1 mile (on ground)}}$ which is equivalent to R. F.= 1/63360, since 1 mile=63,360 inches. So the expression, "R. F. 1/63360" on a map merely means that 1 inch on the map represents 63,360 inches (or 1 mile) on the ground. This fraction is usually written with a numerator 1, as above, no definite unit of inches or miles being specified in either the numerator or denominator. In this case the expression means that one unit of distance on the map equals as many of the same units on the ground as are in the denominator. Thus, 1/63360 means that 1 inch on the map=63,360 inches on the ground, 1 foot on the map=63,360 feet on the ground; 1 yard on the map=63,360 yards on the ground, etc.

3. By Graphical Scale, that is, a drawn scale. A graphical scale is a line drawn on the map, divided into equal parts, each part being marked not with its actual length, but with the distance which it represents on the ground. Thus:

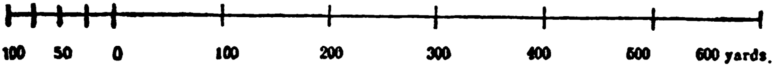


Fig. 148

For example, the distance from 0 to 50 represents fifty yards on the ground; the distance from 0 to 100, one hundred yards on the ground, etc.

If the above scale were applied to the road running from A to B in Fig. 149, it would show that the length of the road is 675 yards.

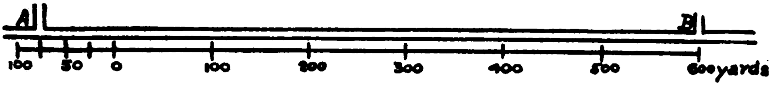


Fig. 149

437. **Construction of Scales.** The following are the most usual problems that arise in connection with the construction of scales:

1. Having given the R. F. on a map, to find how many miles on the ground are represented by one inch on the map. Let us suppose that the R. F. is $^{1}/_{21120}$.

Solution

Now, as previously explained, $^{1}/_{21120}$ simply means that one inch on the map represents 21,120 inches on the ground. There are 63,360 inches in one mile. 21,120 goes into 63,360 three times—that is to say, 21,120 is ⅓ of 63,360, and we, therefore, see from this that one inch on the map represents ⅓ of a mile on the ground, and consequently it would take three inches on the map to represent one whole mile on the ground. So, we have this general rule: To find out how many miles one inch on the map represents on the ground, divide the denominator of the R. F. by 63,360.

2. Being given the R. F. to construct a graphical scale to read yards. Let us assume that $^{1}/_{21120}$ is the R. F. given—that is to say, one inch on the map represents 21,120 inches on the ground, but, as there are 36 inches in one yard, 21,120 inches=$^{21120}/_{36}$ yds.=586.66 yds.—that is, one inch on the map represents 586.66 yds. on the ground. Now, suppose about a 6-inch scale is desired. Since one inch on the map = 586.66 yards on the ground, 6 inches (map) = 586.66 × 6 = 3,519.96 yards (ground). In order to get as nearly a 6-inch scale as possible to represent even hundreds of yards, let us assume 3,500 yards to be the total number to be represented by the scale. The question then resolves itself into this: How many inches on the map are necessary to represent 3,500 yards on the ground. Since, as we have seen, one inch (map)=586.66 yards (ground), as many inches are necessary to show 3,500 yards as 586.66 is contained in 3,500; or $^{3500}/_{586.66}$=5.96 inches.

437 (contd.)

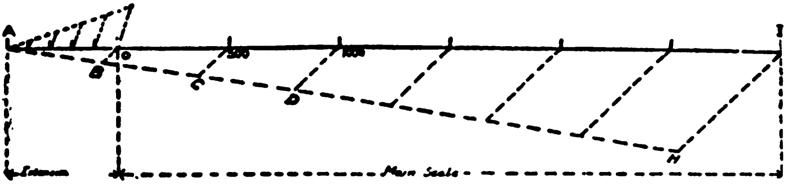


Fig. 150

Now lay off with a scale of equal parts the distance A-I (Figure 150 = 5.96 inches (about 5 and 9½ tenths), and divide it into 7 equal parts by the construction shown in figure, as follows: Draw a line A-H, making any convenient angle with A-I, and lay off 7 equal convenient lengths (A-B, B-C, C-D, etc.), so as to bring H about opposite to I. Join H and I and draw the intermediate lines through B, C, etc., parallel to H-I. These lines divide A-I into 7 equal parts, each 500 yards long. The left part, called the Extension, is similarly divided into 5 equal parts, each representing 100 yards.

3. **To construct a scale for a map with no scale.** In this case, measure the distance between any two definite points on the ground represented, by pacing or otherwise, and scale off the corresponding map distance. Then see how the distance thus measured corresponds with the distance on the map between the two points. For example, let us suppose that the distance on the ground between two given points is one mile and that the distance between the corresponding points on the map is ¾ inch. We would, therefore, see that ¾ inch on the map = one mile on the ground. Hence ¼ inch would represent ⅓ of a mile, and 4-4, or one inch, would represent 4 × ⅓ = 4-3 = 1⅓ miles.

The R. F. is found as follows:

$$\text{R. F.}\ \frac{1\ \text{inch}}{1\tfrac{1}{3}\ \text{mile}} = \frac{1\ \text{inch}}{63{,}360 \times 1\tfrac{1}{3}\ \text{inches}} = {}^{1}/_{84480}.$$

From this a scale of yards is constructed as above (149).

4. To construct a graphical scale expressed in unfamiliar units. There remains one more problem, which occurs when there is a scale on the map in words and figures, but it is expressed in unfamiliar units, such as the meter (= 39.37 inches), strides of a man or horse, rate of travel of column, etc. If a noncommissioned officer should come into possession of such a map, it would be impossible for him to have a correct idea of the distances on the map. If the scale were in inches to miles or yards, he would estimate the distance between any two points on the map to be so many inches and at once know the corresponding distance on the ground in miles or yards. But suppose the scale found on the map to be one inch = 100 strides (ground), then estimates could not be intelligently made by one unfamiliar with the length of the stride used. However, suppose the stride was 60 inches long; we would then have this: Since 1 stride = 60 inches, 100 strides = 6,000 inches. But according to our supposition, 1 inch on the map = 100 strides on the ground; hence 1

inch on the map = 6,000 inches on the ground, and we have as our R. F.,

$$\frac{1 \text{ inch (map)}}{6{,}000 \text{ inches(ground)}} = {}^{1}/_{6000}.$$

A graphical scale can now be constructed as in (149).

438. Problems in Scales

The following problems should be solved to become familiar with the construction of scales:

Problem No. 1. The R. F. of a map is $^{1}/_{1000}$. **Required:** 1. The distance in miles shown by one inch on the map; 2. To construct a graphical scale of yards; also one to read miles.

Problem No. 2. A map has a graphical scale on which 1.5 inches reads 500 strides. 1. What is the R. F. of the map? 2. How many miles are represented by 1 inch?

Problem No. 3. The Leavenworth map in back of this book has a graphical scale and a measured distance of 1.25 inches reads 1,100 yards. Required: 1. The R. F. of the map; 2. Number of miles shown by 1 inch on the map.

Problem No. 4. 1. Construct a scale to read yards for a map of R. F. = $^{1}/_{21120}$. 2. How many inches represent 1 mile?

439. **Scaling distances from a map.** There are four methods of scaling distances from maps:

1. Apply a piece of straight edged paper to the distance between any two points, A and B, for instance, and mark the distance on the paper. Now, apply the paper to the graphical scale, (Fig. 149, Par. 436), and read the number of yards on the main scale and add the number indicated on the extension. For example: 600 + 75 = 675 yards.

2. By taking the distance off with a pair of dividers and applying the dividers thus set to the graphical scale, the distance is read.

3. By use of an instrument called a map measurer, Fig. 151, set the hand on the face to read zero, roll the small wheel over the distance; now roll the wheel in an opposite direction along the graphical scale, noting the number of yards passed over. Or, having rolled over the distance, note the number of inches on the dial and multiply this by the number of miles or other units per inch. A map measurer is valuable for use in solving map problems in patrolling, advance guard, outpost, etc.

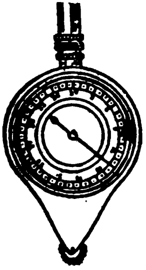


Fig. 151

4. Apply a scale of inches to the line to be measured, and multiply this distance by the number of miles per inch shown by the map.

LESSON 16

439a. Contours. In order to show on a map a correct representation of ground, the depressions and elevations,—that is, the undulations,—must be represented. This is usually done by *contours.*

Conversationally speaking, a *contour* is the outline of a figure or body, or the line or lines representing such an outline.

In connection with maps, the word *contour* is used in these two senses:

1. It is a projection on a horizontal (level) plane (that is, a map) of the line in which a horizontal plane cuts the surface of the ground. In other words, it is a line on a map which shows the route one might follow on the ground and walk on the absolute level. If, for example, you went half way up the side of a hill and, starting there, walked entirely around the hill, neither going up any higher nor down any lower, and you drew a line of the route you had followed, this line would be a *contour line* and its projection on a horizontal plane (map) would be a *contour.*

By imagining the surface of the ground being cut by a number of horizontal planes *that are the same distance apart,* and then projecting (shooting) on a horizontal plane (map) the lines so cut, the elevations and depressions on the ground are represented on the map.

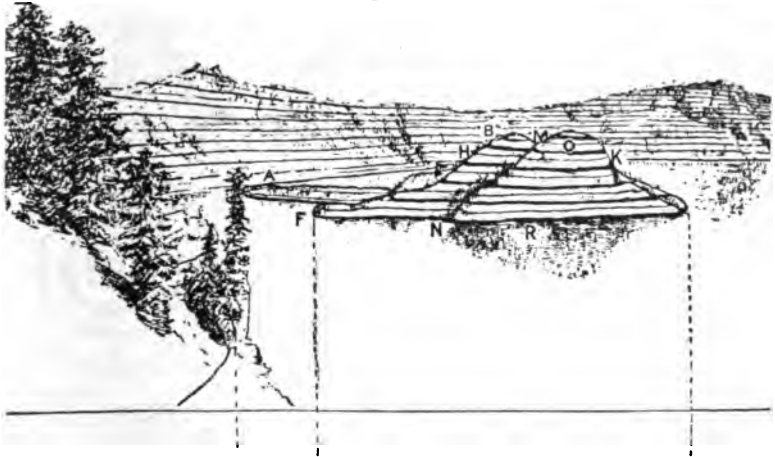
It is important to remember that the imaginary horizontal planes cutting the surface of the ground must be the same distance apart. The distance between the planes is called the *contour interval.*

2. The word *contour* is also used in referring to *contour line,*—that is to say, it is used in referring to the line itself in which a horizontal plane cuts the surface of the ground as well as in referring to the projection of such line on a horizontal plane.

An excellent idea of what is meant by contours and contour lines can be gotten from Figs. 152 and 153. Let us suppose that formerly the island represented in Fig. 152 was entirely under water and that by a sudden disturbance the water of the lake fell until the island stood twenty feet above the water, and that later several other sudden falls of the water, twenty feet each time, occurred, until now the island stands 100 feet out of the lake, and at each of the twenty feet elevations a distinct water line is left. These water lines are perfect contour-lines measured from the surface of the lake as a reference (or datum) plane. Figure 153 shows the contour-lines in Fig. 152 projected, or shot down, on a horizontal (level) surface. It will be observed that on the gentle slopes, such as F-H (Fig. 152), the contours (20, 40) are far apart. But on the steep slopes, as R-O, the contours (20, 40, 60, 80, 100) are close together. Hence, it is seen that contours far apart on a map indicate gentle slopes, and contours close together, steep slopes. It is also seen that the shape of the contours gives an accurate idea of the form of the island. The contours in Fig. 153 give an exact representation not only of the general form of the island, the two peaks, O and B, the stream, M-N, the Saddle, M, the water shed from F to H, and steep bluff at K, but they also give the slopes of the ground at all points. From this we see that the slopes are directly proportional to the nearness of the contours—that is, the nearer the contours on a map are to one another, the steeper is the slope, and the farther the contours on a map are from one another, the gentler is the slope. A wide space between contours, therefore, represents level ground.

The contours on maps are always numbered, the number of each showing its height above some plane called a datum plane. Thus in Fig. 153 the contours are numbered from 0 to 100 using the surface of the lake as the datum plane.

Fig. 152



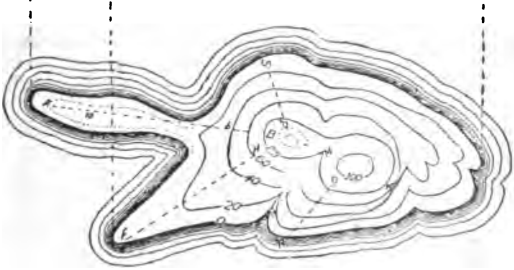


Fig. 153

The numbering shows at once the height of any point on a given contour and in addition shows the contour interval—in this case 20 feet.

Generally only every fifth contour is numbered.

The datum plane generally used in maps is mean sea level, hence the elevations indicated would be the heights above mean sea level.

439a (contd.)

The contours of a cone (Fig. 154) are circles of different sizes, one within another, and the same distance apart, because the slope of a cone is at all points the same.

The contours of a half sphere (Fig. 155), are a series of circles, far apart near the center (top), and near together at the outside (bottom), showing that the slope of a hemisphere varies at all points, being nearly flat on top and increasing in steepness toward the bottom.

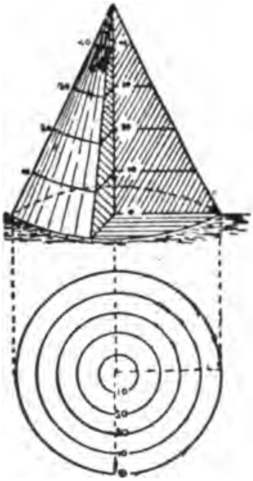


Fig. 154

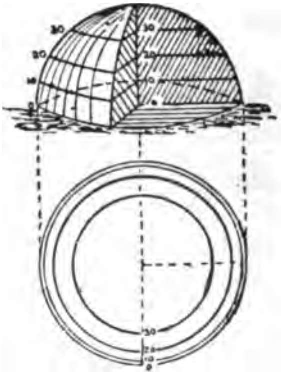


Fig. 155

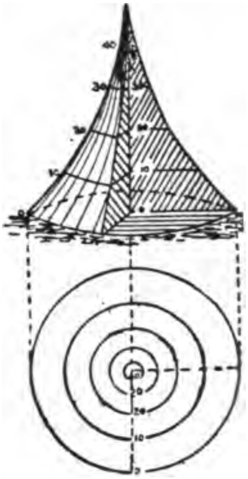


Fig. 156

The contours of a concave (hollowed out) cone (Fig. 156) are close together at the center (top) and far apart at the outside (bottom).

The following additional points about contours should be remembered:

(a) A Water Shed or Spur, along with rain water divides, flowing away from it on both sides, is indicated by the higher contours bulging out toward the lower ones (F-H, Fig. 153).

(b) A Water Course or Valley, along which rain falling on both sides of it joins in one stream, is indicated by the lower contours curving in toward the higher ones (M-N, Fig. 153).

(c) The contours of different heights which unite and become a single line, represent a vertical cliff (K, Fig. 153).

(d) Two contours which cross each other represent an overhanging cliff.

(e) A closed contour without another contour in it, represents either an elevation or a depression, depending on whether its reference number is greater or smaller than that of the outer contour. A hilltop is shown when the closed contour is higher than the contour next to it; a depression is shown when the closed contour is lower than the one next to it.

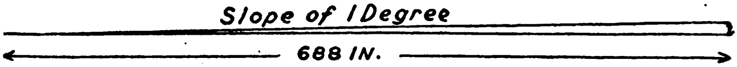
If the student will first examine the drainage system, as shown by the courses of the streams on the map, he can readily locate all the valleys, as the streams must flow through valleys. Knowing the valleys, the ridges or hills can easily be placed, even without reference to the numbers on the contours.

For example: On the Elementary Map, Woods Creek flows north and York Creek flows south. They rise very close to each other, and the ground between the points at which they rise must be higher ground, sloping north on one side and south on the other, as the streams flow north and south, respectively (see the ridge running west from Twin Hills).

The course of Sandy Creek indicates a long valley, extending almost the entire length of the map. Meadow Creek follows another valley, and Deep Run another. When these streams happen to join other streams, the valleys must open into each other.

LESSON 17

440. **Map Distances (or horizontal equivalents).** The horizontal distance between contours on a map (called map distance, or M. D.; or horizontal equivalents or H. E.) is inversely proportional to the slope of the ground represented—that is to say, the greater the slope of the ground, the less is the horizontal distance between the contours; the less the slope of the ground represented, the greater is the horizontal distance between the contours.



Slope (degrees)	Rise (feet)	Horizontal Distance (inches)
1 deg.	1	688
2 deg.	1	$\frac{688}{2} = 344$
3 deg.	1	$\frac{688}{3} = 229$
4 deg.	1	$\frac{688}{4} = 172$
5 deg.	1	$\frac{688}{5} = 138$

Fig. 157

It is a fact that 688 inches horizontally on a 1 degree slope gives a vertical rise of one foot; 1376 inches, two feet, 2064 inches, three feet, etc., from which we see that on a slope of 1 degree, 688 inches multiplied by vertical rises of 1 foot, 2 feet, 3 feet, etc., gives us the corresponding horizontal distance in inches. For example, if the contour interval (Vertical Interval, V. I.) of a map is 10 feet, then 688 inches x 10 equals 6880 inches, gives the horizontal ground distance corresponding to a rise of 10 feet on a 1 degree slope. To reduce this horizontal ground distance to horizontal map distance, we would, for example, proceed as follows:

Let us assume the R. F. to be 1/15840—that is to say, 15,840 inches on the ground equals 1 inch on the map, consequently, 6880 inches on the ground equals 6880/15840, equals .44 inch on the map. And in the case of 2 degrees, 3 degrees, etc., we would have:

$$\text{M. D. for } 2^\circ = \frac{6880}{15840 \times 2} = .22 \text{ inch;}$$

$$\text{M. D. for } 3^\circ = \frac{6880}{15840 \times 3} = .15 \text{ inch, etc.}$$

From the above, we have this rule:

To construct a scale of M. D. for a map, multiply 688 by the contour interval (in feet) and the R. F. of the map, and divide the results by 1, 2, 3, 4, etc., and then lay off these distances as shown in Fig. 158, Par. 441.

FORMULA

$$\text{M. D. (inches)} = \frac{688 \times \text{V. I. (feet)} \times \text{R. F.}}{\text{Degrees (1, 2, 3, 4, etc.)}}$$

441. **Scale of Map Distances (or, Scale of Slopes).** On the Elementary Map, below the scale of miles and scale of yards, is a scale similar to the following one:

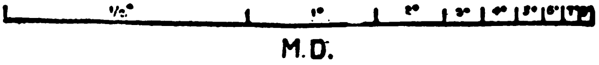


Fig. 158

The left-hand division is marked ½°; the next division (one-half as long) 1°; the next division (one-half the length of the 1° division) 2°, and so on. The ½° division means that where adjacent contours on the map are just that distance apart, the ground has a slope of ½ a degree between these two contours, and slopes up toward the contour with the higher reference number; a space between adjacent contours equal to the 1° space shown on the scale means a 1° slope, and so on.

What is a slope of 1°? By a slope of 1° we mean that the surface of the ground makes an angle of 1° with the horizontal (a level surface. See Fig. 157, Par. 440). The student should find out the slope of some hill or street and thus get a concrete idea of what the different degrees of slope mean. A road having a 5° slope is very steep.

By means of this scale of M. D.'s on the map, the map reader can determine the slope of any portion of the ground represented, that is, as steep as ½° or steeper. Ground having a slope of less than ½° is practically level.

442. **Slopes.** Slopes are usually given in one of three ways: 1st, in degrees; 2d in percentages; 3d, in gradients (grades).

1st. A one degree slope means that the angle between the horizontal and the given line is 1 degree (1°). See Fig. 157, Par. 440.

2d. A slope is said to be 1, 2, 3, etc., per cent, when 100 units horizontally correspond to a rise of 1, 2, 3, etc., units vertically.

3d. A slope is said to be one on one (1/1), two on three, (2/3), etc., when one unit horizontal corresponds to 1 vertical; three horizontal correspond to two vertical, etc. The numerator usually refers to the vertical distance, and the denominator to the horizontal distance.

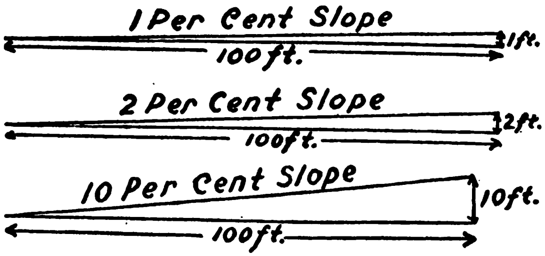


Fig. 159

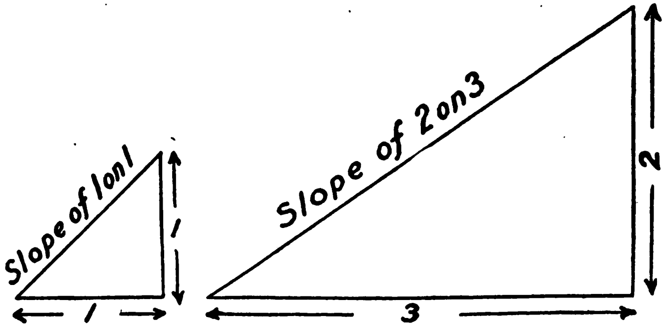


Fig. 160

Degrees of slope are usually used in military matters; percentages are often used for roads, almost always of railroads; gradients are used of steep slopes, and usually of dimensions of trenches.

443. EFFECT OF SLOPE ON MOVEMENTS

60 degrees or 7/4 inaccessible for infantry;
45 degrees or 1/1 difficult for infantry;
30 degrees or 4/7 inaccessible for cavalry;
15 degrees or 1/4 inaccessible for artillery;
5 degrees or 1/12 accessible for wagons.

The normal system of scales prescribed for U. S. Army field sketches is as follows: For road sketches, 3 inches = 1 mile, vertical interval between contours (V. I.) = 20 ft.; for position sketches, 6 inches = 1 mile, V. I. = 10 ft.; for fortification sketches, 12 inches = 1 mile, V. I. = 5 ft. On this system any given length of M. D. corresponds to the same slope on each of the scales. For instance, .15 inch betwen contour represents a 5° slope on the 3-inch, 6-inch and 12-inch maps of the normal system. Figure 158, Par. 441, gives the normal scale of M. D.'s for slopes up to 8 degrees. A scale of M. D.'s is usually printed on the margin of maps, near the geographical scale.

444. Meridians. If you look along the upper left hand border of the Elementary Map (back of Manual), you will see two arrows, as shown in Fig. 161, pointing towards the top of the map.

They are pointing in the direction that is north on the map. The arrow with a full barb points toward the north pole (the True North Pole) of the earth, and is called the True Meridian.

The arrow with but half a barb points toward what is known as the Magnetic Pole of the earth, and is called the Magnetic Meridian.

The Magnetic Pole is a point up in the arctic regions, near the geographical or True North Pole, which, on account of its magnetic qualities, attracts one end of all compass needles, and causes them to point towards it, and as it is near the True North Pole, this serves to indicate the direction of north to a person using a compass.

Of course, the angle which the Magnetic needle makes with the True Meridian (called the Magnetic Declination) varies at different points on the earth. In some places it points east of the True Meridian and in others it points west of it.

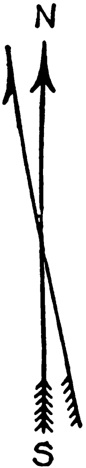


Fig. 161

It is important to know this relation because maps usually show the True Meridian and an observer is generally supplied with a magnetic compass. Fig. 162 shows the usual type of Box Compass. It has 4 cardinal points, N, E, S and W marked, as well as a circle graduated in degrees from zero to 360°, clockwise around the circle. To read the magnetic angle (called magnetic azimuth) of any point from the observer's position the north point of the compass circle is pointed toward the object and the angle indicated by the north end of the needle is read.

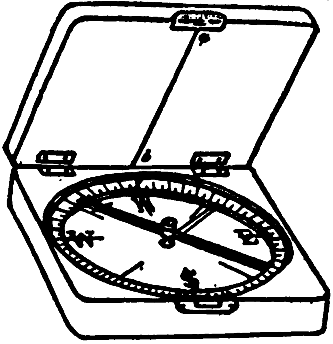


Fig. 162

You now know from the meridians, for example, in going from York to Oxford (see Elementary Map) that you travel north; from Boling to Salem you must travel south; going from Salem to York requires you to travel west; and from York to Salem you travel east. Suppose you are in command of a patrol at York and are told to go to Salem by the most direct line across country. You look at your map and see that Salem is exactly east of York. Next you take out your field compass (Figure 162, Par. 444), raise the lid, hold the box level, allow the needle to settle and see in what direction the north end of the needle points (it would point toward Oxford). You then know the direction of north from York, and you can turn to your right and go due east toward Salem.

Having once discovered the direction of north on the ground, you can go to any point shown on your map without other assistance. If you stand at York, facing north and refer to your map, you need no guide to tell you that Salem lies directly to your right; Oxford straight in front of you; Boling in a direction about halfway between the directions of Salem and Oxford, and so on.

445. **Determination of positions of points on map.** If the distance, height and direction of a point on a map are known with respect to any other point, then the position of the first point is fully determined.

The scale of the map enables us to determine the distance; the contours, the height, and the time meridian, the direction.

Thus (see map in pocket at back of book), Pope Hill (sm′) is 800 yards from Grant Hill (um′) (using graphical scale), and it is 30 feet higher than Grant Hill, since it is on contour 870 and Grant Hill is on contour 840; Pope Hill is also due north of Grant Hill, that is, the north and south line through Grant Hill passes through Pope Hill. Therefore, the position of Pope Hill is fully determined with respect to Grant Hill.

ORIENTATION

446. In order that directions on the map and on the ground shall correspond, it is necessary for the map to be oriented, that is, the true meridian of the map must lie in the same direction as the true meridian through the observer's position on the ground, which is only another way of saying that the lines that run north and south on the map must run in the same direction as the lines north and south on the ground. Every road, stream or other feature on the map will then run in the same direction as the road, stream or other feature itself on the ground, and all the objects shown on the map can be quickly identified and picked out on the ground.

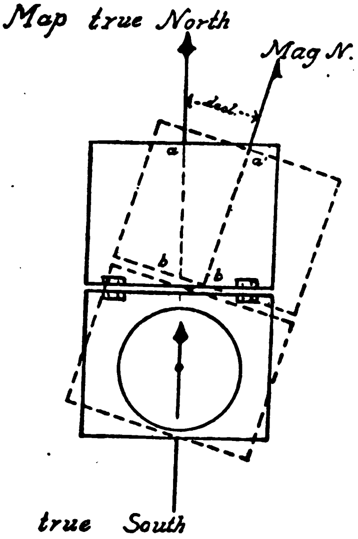


Fig. 163

METHODS OF ORIENTING A MAP

1st. By magnetic needle: If the map has a magnetic meridian marked on it as is on the Leavenworth map (in pocket at back of book), place the sighting line, a-b, of the compass (Fig. 162) on the magnetic meridian of the map and move the map around horizontally until the north end of the needle points toward the north of its circle, whereupon the map is oriented. If there is a true meridian on the map, but not a magnetic meridian, one may be constructed as follows, if the magnetic declination is known:

(Figure 163): Place the true meridian of the map directly under the magnetic needle of the compass and then move the compass box until the needle reads an angle equal to the magnetic declination. A line in extension of the sighting line a′-b′

will be the magnetic meridian. If the magnetic declination of the observer's position is not more than 4° or 5°, the orientation will be given closely enough for ordinary purposes by taking the true and magnetic meridians to be identical.

2d. If neither the magnetic nor the true meridian is on the map, but the observer's position on the ground is known: Move the map horizontally until the direction of some definite point on the ground is the same as its direction on the map; the map is then oriented. For example, suppose you are standing on the ground at 8, q k′ (Fort Leavenworth Map), and can see the U. S. penitentiary off to the south. Hold the map in front of you and face toward the U. S. penitentiary, moving the map until the line joining 8 and the U. S. penitentiary (on the map) lies in the same direction as the line joining those two points on the ground. The map is now oriented.

Having learned to orient a map and to locate his position on the map, one should then practice moving over the ground and at the same time keeping his map oriented and noting each ground feature on the map as it is passed. This practice is of the greatest value in learning to read a map accurately and estimate distances, directions and slopes correctly.

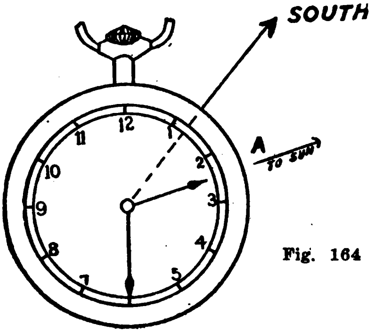


Fig. 164

TRUE MERIDIAN

447. The position of the true meridian may be found as follows (Fig. 164): Point the hour hand of a watch toward the sun; the line joining the pivot and the point midway between the hour hand and XII on the dial, will point toward the south; that is to say, if the observer stands so as to face the sun and the XII on the dial, he will be looking south. To point the hour hand exactly at the sun, stick a pin as at (a) Fig. 164 and bring the hour hand into the shadow. At night, a line drawn toward the north star from the observer's position is approximately a true meridian.

The line joining the "pointers" of the Great Bear or Dipper, prolonged about five times its length passes nearly through the North Star, which can be recognized by its brilliancy.

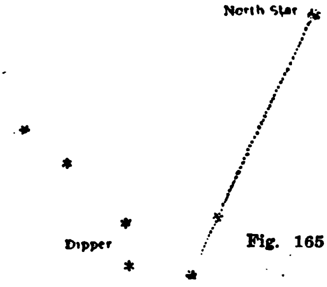


Fig. 165

448. **Conventional Signs.** In order that the person using a map may be able to tell what are roads, houses, woods, etc., each of these features is represented by particular signs, called conventional signs. In other words, conventional signs are certain marks or symbols shown

448 (contd.)

on a map to designate physical features of the terrain. (See diagram, Par. 449, Figs. 167 and 168.) On the Elementary Map the conventional signs are all labeled with the name of what they represent. By examining this map the student can quickly learn to diistinguish the conventional signs of most of the ordinary features shown on maps. These conventional signs are usually graphical representations of the ground features they represent, and, therefore, can usually be recognized with out explanation.

For example, the roads on the Elementary Map can be easily distinguished. They are represented by parallel lines (═════). The student should be able to trace out the route of the Valley Pike, the Chester Pike, the County Road, and the direct road from Salem to Boling.

Private or farm lanes and unimproved roads are represented by broken lines (══ ══ ══ ══). Such a road or lane can be seen running from the Barton farm to the Chester Pike. Another lane runs from the Mills farm to the same Pike. The small crossmarks on the road lines indicate barbed wire fences; the round circles indicate smooth wire; the small, connected ovals (as shown around the cemetery) indicate stone walls, and the zigzag lines (as shown one mile south of Boling) represent wooden fences.

Near the center of the map, by the Chester Pike, is an orchard. The small circles, regularly placed, give the idea of trees planted in regular rows. Each circle does not indicate a tree, but the area covered by the small circles does indicate accurately the area covered by the orchard on the ground.

Just southwest of Boling a large woods (Boling Woods) is shown. Other clumps of woods, of varying extent, are indicated on the map.

The course of Sandy Creek can be readily traced, and the arrows placed along it indicate the direction in which it flows. Its steep banks are indicated by successive dashes, termed *hachures*. A few trees are shown strung along its banks. Baker's Pond receives its water from the little creek which rises in the small clump of timber just south of the pond, and the hachure along the northern end represents the steep banks of a dam. Meadow Creek flows northeast from the dam and then northwest toward Oxford, joining Woods Creek just south of that town. York Creek rises in the woods 1¼ miles north of York, and flows south through York. It has a west branch which rises in the valleys south of Twin Hills.

A railroad is shown running southeast from Oxford to Salem. The hachures, unconnected at their outer extremities, indicate the fills or embankments over which the track runs. Notice the fills or embankments on which the railroad runs just northwest of Salem; near the crossing of Sandy Creek; north of Baker's Pond; and where it approaches the outskirts of Oxford. The hachures, connected along their outer extremities, represent the cut through which the railroad passes. There is only one railroad cut shown on the Elementary Map—about one-quarter of a mile northeast of Baker's Pond—where it cuts through the northern extremity of the long range of hills, starting just east of York. The wagon roads pass through numerous cuts—west of Twin Hills, northern end of Sandy Ridge, southeastern end of Long Ridge, and so on.

The small T's along the railroad and some of the wagon roads indicate telegraph or telephone lines.

The conventional sign for a bridge is shown where the railroad crosses Sandy Creek on a trestle. Other bridges are shown at the points the wagon roads cross this creek. Houses or buildings are shown in Oxford, Salem, York and Boling. They are also shown in the case of a number of farms represented—Barton farm, Wells farm, Mason's, Brown's, Baker's and others. The houses shown in solid black are substantial structures of brick or stone; the buildings indicated by rectangular outlines are "out buildings," barns, sheds, etc.

Figures 167 and 168 give the Conventional Signs used on military maps and they should be thoroughly learned.

In hasty sketching, in order to save time, instead of using the regulation Conventional Signs, very often simply the outline of the object, such as a wood, a vineyard, a lake, etc., is indicated, with the name of the object written within the outline, thus:

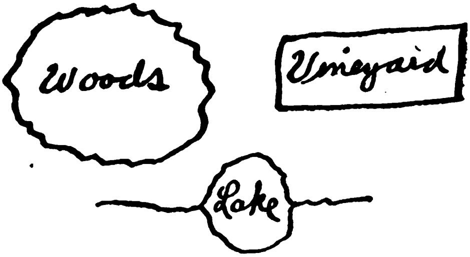


Fig. 166

Such means are used very frequently in rapid sketching, on account of the time that they save.

By reference to the map of Fort Leavenworth, the meaning of all its symbols is at once evident from the names printed thereon; for example, that of a city, woods, roads, streams, railroad, etc.; where no Conventional Sign is used on any area, it is to be understood that any growths thereon are not high enough to furnish any cover. As an exercise, pick out from the map the following conventional signs: Unimproved road, cemetery, railroad track, hedge, wire fence, orchard, streams, lake. The numbers on the various road crossings have no equivalent on the ground, but are placed on the maps to facilitate description of routes, etc. Often the numbers at road crossings on other maps denote the elevation of these points.

LESSON 18

VISIBILITY

449. The problem of visibility is based on the relations of contours and map distances previously discussed, and includes such matters as the determination of whether a point can or cannot be seen from another; whether a certain line of march is concealed from the enemy; whether a particular area is seen from a given point.

On account of the necessary inaccuracy of all maps it is impossible to determine exactly how much ground is visible from any given point—that is, if a correct reading of the map shows a certain point to be just barely visible, then it would be unsafe to say positively that on the ground this point could be seen or could not be seen. It is, however, of great importance for one to be able to determine at a glance, within about one contour interval, whether or not such and such a point is visible; or whether a given road is generally visible to a certain scout, etc. For this reason no effort is made to give an exact mathematical solution of problems in visibility further than would be useful in practical work with a map in the solution of map problems in patrolling.

In the solution of visibility problems, it is necessary that one should thoroughly understand the meaning of profiles and their construction. A profile is the line supposed to be cut from the surface of the earth by an imaginary vertical (up and down) plane. (See Fig. 170.) The representation of this line to scale on a sheet of paper is also called a profile. Fig. 21 shows a profile on the line D—y (Figure 169) in which the horizontal scale is the same as that of the map (Figure 169) and the vertical scale is 1 inch = 40 feet. It is customary to draw a profile with a greater vertical than horizontal scale in order to make the slopes on the profile appear to the eye as they exist on the ground. Consequently, always note especially the vertical scale in examining any profile; the horizontal scale is usually that of the map from which the profile is taken.

A profile is constructed as follows: (Fig. 170): Draw a line D′—y′ equal in length to D—y on the map. Lay off on this line from D′ distances equal to the distances of the successive contours from D on the map. At each of these contour points erect a perpendicular equal to the elevation of this particular contour, as shown by the vertical scale (960, 940, 920, etc.) on the left. Join successively these verticals by a smooth curve, which is the required profile. Cross section paper with lines printed 1/10 inch apart horizontally and vertically simplifies the work of construction, by avoiding the necessity of laying off each individual distance.

450. **Visibility Problem.** To determine whether an observer with his eye at D can see the bridge at XX (Fig. 169). By examining the pro-

450 (contd.)

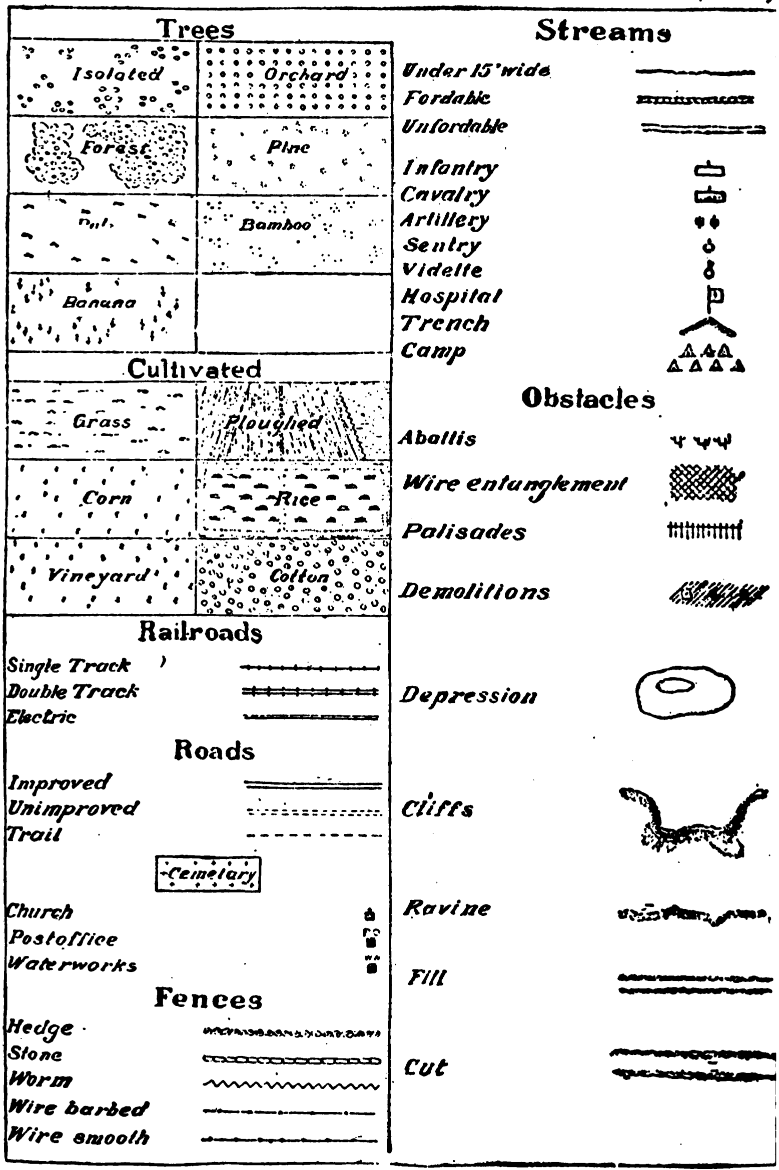

Trees
Isolated
Orchard
Forest
Pine
Palm
Bamboo
Banana
Cultivated
Grass
Ploughed
Corn
Rice
Vineyard
Cotton
Railroads
Single Track
Double Track
Electric
Roads
Improved
Unimproved
Trail
Cemetery
Church
Postoffice
P.O.
Waterworks
W.W.
Fences
Hedge
Stone
Worm
Wire barbed
Wire smooth
Streams
Under 15' wide
Fordable
Unfordable
Infantry
Cavalry
Artillery
Sentry
Vidette
Hospital
Trench
Camp
Obstacles
Abattis
Wire entanglement
Palisades
Demolitions
Depression
Cliffs
Ravine
Fill
Cut

Fig. 167

450 (contd.)

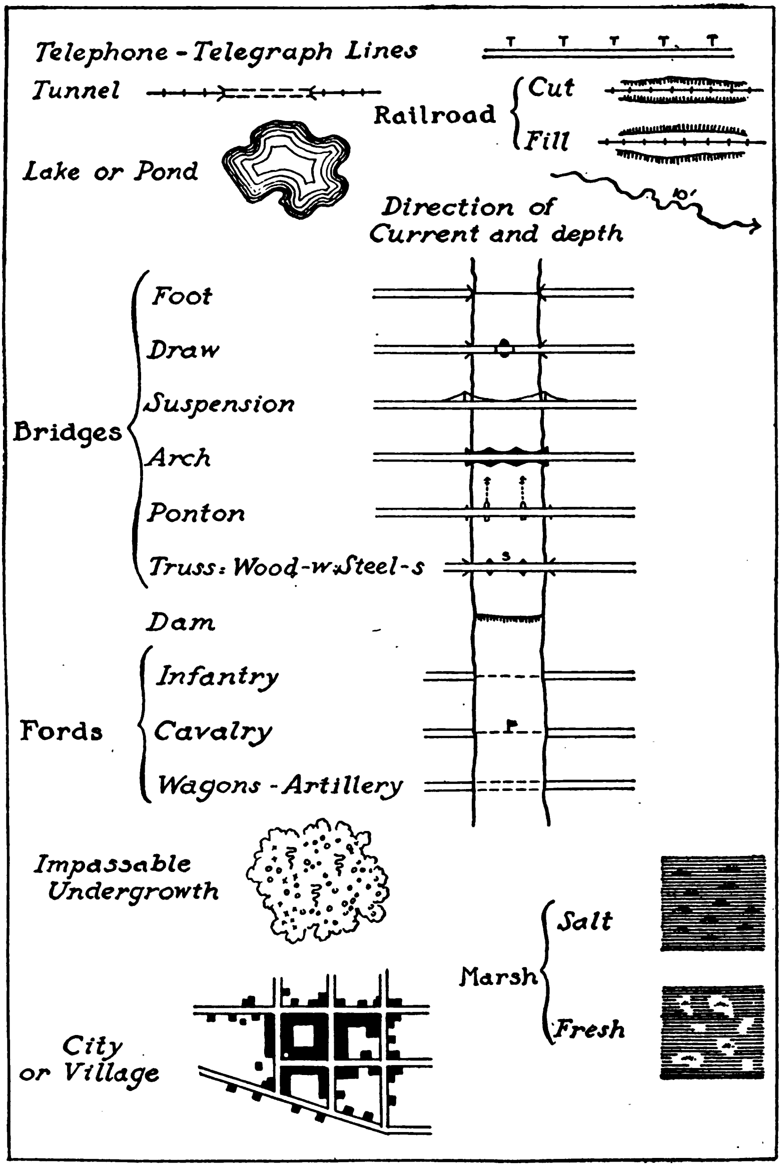
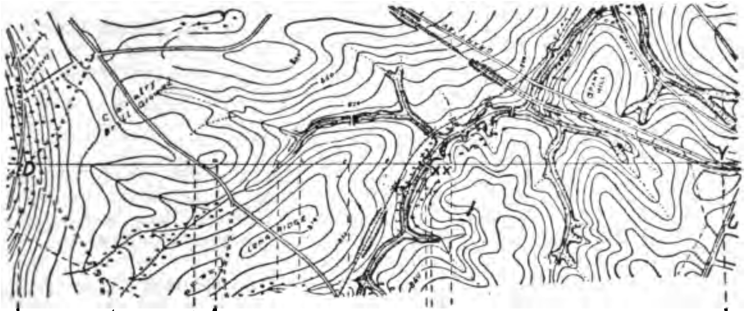

Telephone - Telegraph Lines
T T T T T
Tunnel
Railroad
Cut
Fill
Lake or Pond
Direction of Current and depth
10'
Bridges
Foot
Draw
Suspension
Arch
Ponton
Truss: Wood-w, Steel-s
s
Dam
Fords
Infantry
Cavalry
Wagons - Artillery
Impassable Undergrowth
Marsh
Salt
Fresh
City or Village

Fig. 168

Fig. 169


D
XX
Y
LONG RIDGE

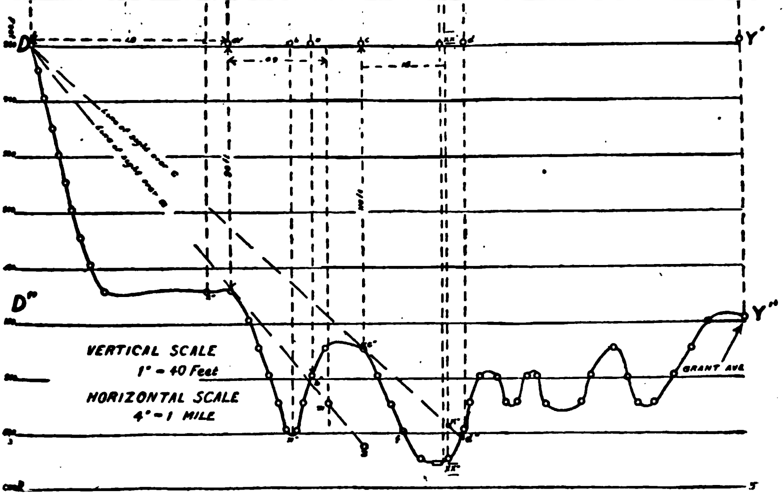

D'
Y'
D''
Y''
XX
VERTICAL SCALE
1" = 40 Feet
HORIZONTAL SCALE
4" = 1 MILE
GRANT AVE

Fig. 170

file it is seen that an observer, with his eye at D, looking along the line D—XX, can see the ground as far as (a) from (a) to (b), is hidden from view by the ridge at (a); (b) to (c) is visible; (c) to (d) is hidden by the ridge at (c). By thus drawing the profiles, the visibility of any point from a given point may be determined. The work may be much shortened by drawing the profile of only the observer's position (D) of the point in question, and of the probable obstructing points (a) and (c). It is evidently unnecessary to construct the profile from D to x, because the slope being concave shows that it does not form an obstruction.

The above method of determining visibility by means of a profile is valuable practice for learning slopes of ground, and the forms of the ground corresponding to different contour spacings.

VISIBILITY OF AREAS

451. To determine the area visible from a given point the same method is used. First mark off as invisible all areas hidden by woods, buildings, high hills, and then test the doubtful points along lines such as D—XX, Figure 169. With practice the noncommissioned officer can soon decide by inspection all except the very close cases.

This method is a rapid approximation of the solution shown in the profile. In general it will not be practicable to determine the visibility of a point by this method closer than to say the line of sight pierces the ground between two adjoining contours.

LESSON 19

MILITARY SKETCHING

(While this chapter presents the principal features of military sketching in a simple, clear manner, attention is invited to the fact that the only way that any one who has never done any sketching can follow properly the statements made, is to do so with the instruments and the sketching material mentioned at hand. In fact, the only way to learn how to sketch is *to sketch.*)

452. A military sketch is a rough map showing the features of the ground that are of military value.

Military sketching is the art of making such a military sketch.

Military sketches are of three kinds:

Position sketches, Fig. 171;
Outpost sketches;
Road sketches.

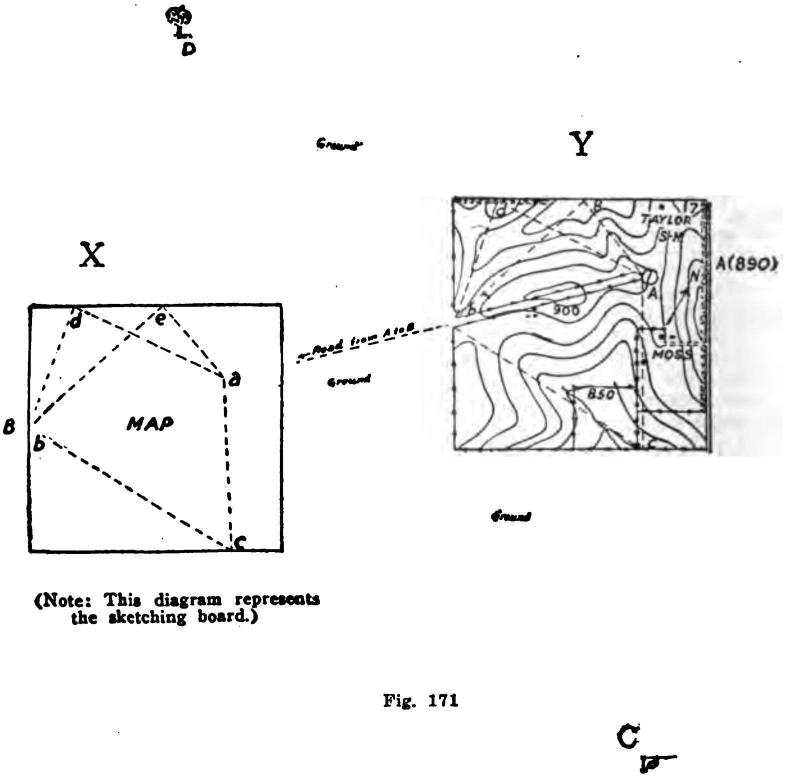
All kinds of military sketches are intended to give a military commander detailed information of the ground to be operated over, when this is not given by the existing maps, or when there are no maps of the area.

The general methods of sketching are:

(1) The location of points by intersection.
(2) The location of points by resection.

453. Location of points by intersection. To locate a point by intersection proceed as follows: Set up, level and orient the sketching board (Par. 446), at A, Fig. 171. The board is said to be oriented when the needle is parallel to the sides of the compass trough of the drawing board, Fig. 172. (At every station the needle must have this position, so that every line on the sketch will be parallel to the corresponding line or direction on the ground.) Assume a point (A) on the paper, Fig. 171 Y, in such a position that the ground to be sketched will fall on the sheet. Lay the ruler on the board and point it to the desired point (C), all the while keeping the edge of the ruler on the point (A), Fig. 171 Y. Draw an indefinite line along the edge. Now move to (B), Fig. 171 X, plotted on the map in (b), Fig. 1 X, and having set up, leveled and oriented as at (A), Fig. 171 Y, sight toward (C) as before. The intersection (crossing) of the two lines locates (C) on the sketch at (c), Fig. 171 X.

454. Locating points by resection. A sketcher at an unknown point may locate himself from two visible known points by setting up and orienting his sketching board. He then places his alidade (ruler) so that it points at one of the known points, keeping the edge of the alidade touching the corresponding point on the sketch. He then draws a ray (line) from the point toward his eye. He repeats the performance with the other visible known point and its location on the map. The point where the rays intersect is his location. This method is called *resection*. However, local attractions for the compass greatly affect this method.



(Note: This diagram represents the sketching board.)

Fig. 171

455. The location of point by traversing. To locate a point by traversing is done as follows: With the board set up, leveled and oriented at A, Fig. 171 Y, as above, draw a line in the direction of the desired point B, Fig. 171 X, and then move to B, counting strides, keeping record of them with a tally register, Fig. 3, if one is available. Set up the board at B, Fig. 171 X, and orient it by laying the ruler along the line (aa)-(b), Fig. 171 X, and moving the board until the ruler is directed toward A, Fig. 171 Y, on the ground; or else orient by the needle as at A. With the scale of the sketcher's strides on the ruler, lay off the number of strides found from A, Fig. 171 Y, to B, Fig. 171 X, and mark the point (b), Fig. 171 X. Other points, such as C, D, etc., would be located in the same way.

456. The determination of the heights of hills, shapes of the ground, etc., by contours. To draw in contours on a sketch, the following steps are necessary:

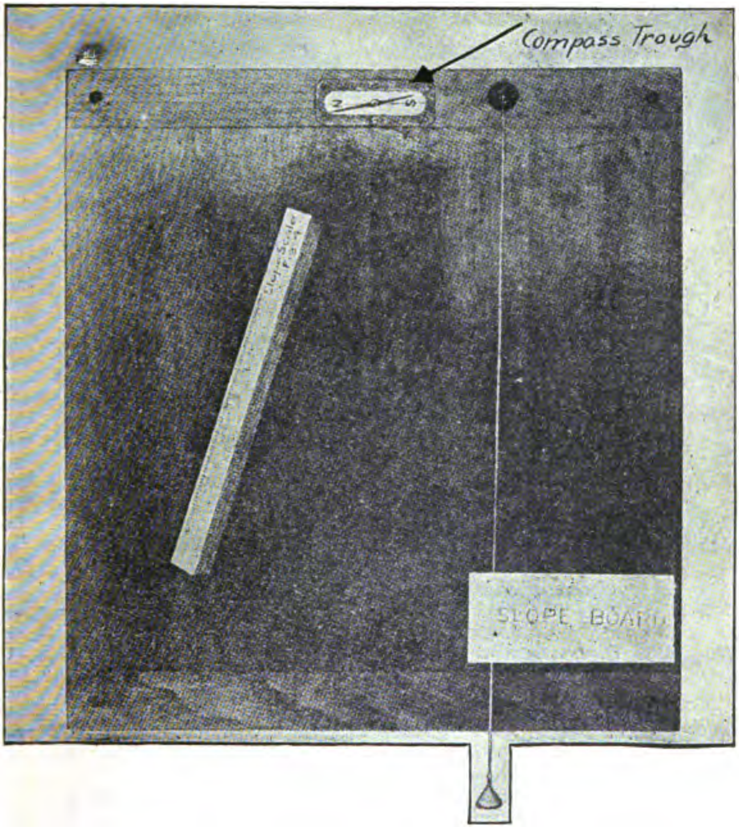


Fig. 172

(a) From the known or assumed elevation of a located station as A, Fig. 171 Y (elevation 890), the elevations of all hill tops, stream junctures, stream sources, etc., are determined.

(b) Having found the elevations of these critical points the contours are put in by spacing them so as to show the slope of the ground along each line such as (a)-(b), (a)-(c), etc., Fig. 171 Y, as these slopes actually are on the ground.

(Tally Register)—Fig. 173

(Clinometer)—Fig. 174

To find the elevation of any point, say C (shown on sketch as c), proceed as follows:

Read the vertical angle with slope board, Fig. 172, or with a clinometer, Fig. 174. Suppose this is found to be 2 degrees; lay the scale of M. D.* (ruler, Fig. 172) along (a)-(c), Fig. 171 Y, and note the number of divisions of—2 degrees (minus 2°) between (a) and (c). Suppose there are found to be 5½ divisions; then, since each division is 10 feet, the total height of A above C is 55 feet (5½ × 10). C is therefore 835 ft. elev. which is written at (c), Fig. 171 Y. Now looking at the ground along A-C, suppose you find it to be a very decided concave (hollowed out) slope, nearly flat at the bottom and steep at the top. There are to be placed in this space (a)-(c), Fig. 171 Y, contours 890, 880, 870, 860 and 850, and they would be spaced close at the top and far apart near (c), Fig. 171 Y, to give a true idea of the slope.

The above is the entire principle of contouring in making sketches and if thoroughly learned by careful repetition under different conditions, will enable the student to soon be able to carry the contours with the horizontal locations.

457. In all maps that are to be contoured some plane, called the *datum plane,* must be used to which all contours are referred. This plane is usually mean sea level and the contours are numbered from this plane upward, all heights being elevations above mean sea level.

In a particular locality that is to be sketched there is generally some point the elevation of which is known. These points may be bench marks of a survey, elevation of a railroad station above sea level, etc. By using such points as the reference point for contours the proper elevations above sea level will be shown.

In case no point of known elevation is at hand the elevation of some point will have to be assumed and the contours referred to it.

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* Sheets of working scales reading in paces, strides, minutes, etc., at a scale of 3 and 6 inches to the mile, can be obtained at little cost from the Secretary, Army Service Schools, Fort Leavenworth, Kansas.

Skill in contouring comes only with practice but by the use of expedients a fairly accurate contoured map can be made. In contouring an area the stream lines and ravines form a framework or skeleton on which the contours are hung more or less like a cobweb. These lines are accurately mapped and their slopes determined and the contours are then sketched in.

If the sketcher desires he may omit determining the slopes of the stream lines and instead determine the elevations of a number of critical points (points where the slope changes) in the area and then draw in the contours remembering that contours bulge downward on slopes and upward on stream lines and ravines.

If time permits both the slopes of the stream lines and the elevation of the critical points may be determined and the resulting sketch will gain in accuracy.

Figs. 175, 176, 177, 178, and 179, show these methods of determining and sketching in contours.

458. Form lines. It frequently happens that a sketch must be made very hastily and time will not permit of contouring. In this case form lines are used. These lines are exactly like contours except that the elevations and forms of the hills and depressions which they represent are estimated and the sketcher draws the form lines in to indicate the varying form of the ground as he sees it.

459. Scales. The Army Regulations prescribe a uniform system of scales and contour intervals for military maps, as follows:

Road sketches and extended positions; scale 3 inches to a mile, vertical (or contour) interval, 20 feet.

Position or outpost sketches; scale 6 inches to a mile, vertical (or contour) interval, 10 feet.

This uniform system is a great help in sketching as a given map distance, Par. 441, represents the same degree of slope for both the 3 inch to the mile or the 6 inch to the mile scale. The map distances once learned can be applied to a map of either scale and this is of great value in sketching.

LESSON 20

CONSTRUCTION OF WORKING SCALES

460. Working scale. A *working scale* is a scale used in making a map. It may be a scale for paces or strides or revolutions of a wheel.

461. Length of pace. The length of a man's pace at a natural walk is about 30 inches, varying somewhat in different men. Each man must determine his own length of pace by walking several times over a known distance. In doing this be sure to take a natural pace. When you know your length of pace you merely count your paces in going over a distance and a simple multiplication of paces by length of pace gives your distance in inches.

In going up and down slopes one's pace varies. On level ground careful pacing will give you distances correct to within 3% or less.

The following tables give length of pace on slopes of 5 degrees to 30 degrees, corresponding to a normal pace on a level of 30.4 inches:

Slopes	0°	5°	10°	15°	20°	25°	30°
Length of step ascending........	30.4	27.6	24.4	22.1	19.7	17.8	15.0
Length of step descending.......	30.4	29.2	28.3	27.6	26.4	23.6	19.7

For the same person, the length of step decreases as he becomes tired. To overcome this, ascertain the length of pace when fresh and when tired and use the first scale in the morning and the latter in the afternoon.

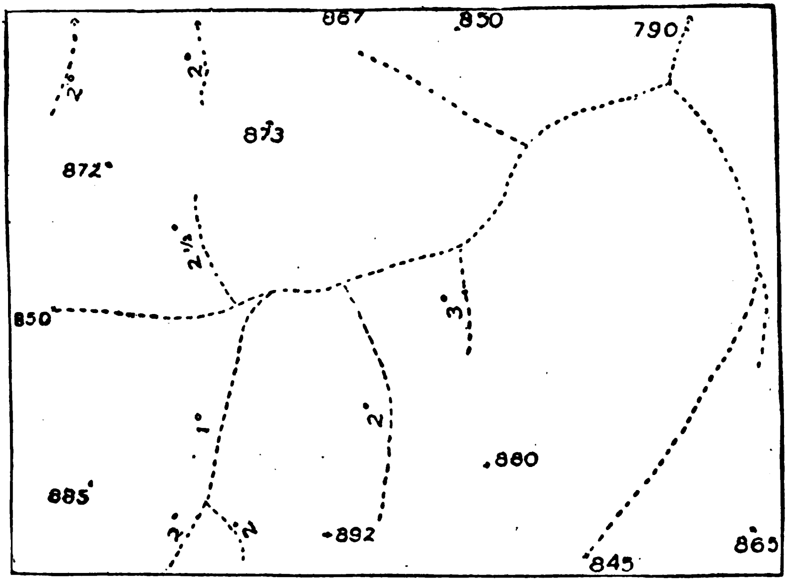
The result of the shortening of the pace due to fatigue or going over a slope, is to make the map larger than it should be for a given scale. This is apparent when we consider that we take more paces in covering a given distance than we would were it on a horizontal plane and we were taking our normal pace.

In going up or down a slope of 3 or 4 we actually walk 5 units, but cover only 4 in a horizontal direction. Therefore, we must make allowance when pacing slopes.

In counting paces count each foot as it strikes. In counting strides count only 1 foot as it strikes. A stride is two paces.

In practice it has been found that the scale of strides is far more satisfactory than a scale of paces.

Fig. 175


867
850
790
2°
2°
873
872
2½°
850
3°
1°
2°
880
885
2°
2°
892
845
865

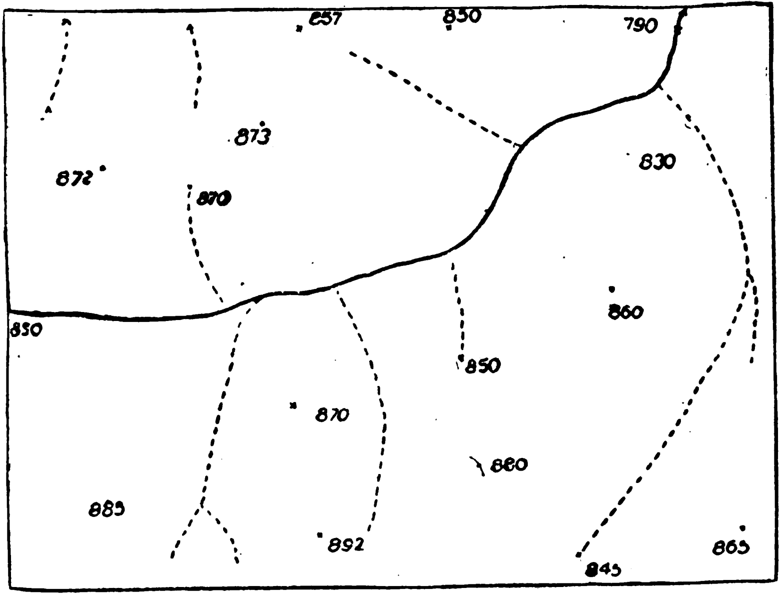
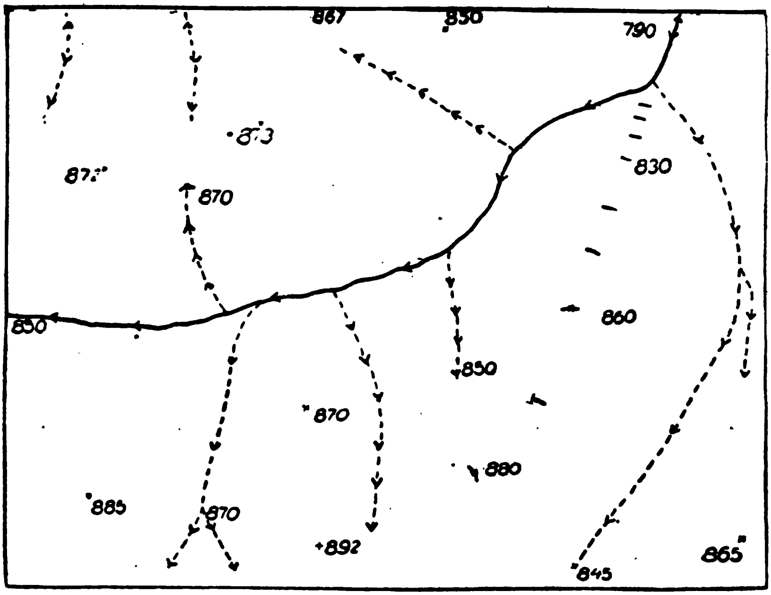

857
850
790
873
872
870
830
850
860
850
870
880
885
892
845
865

Fig. 176

461 (contd.)

Fig. 177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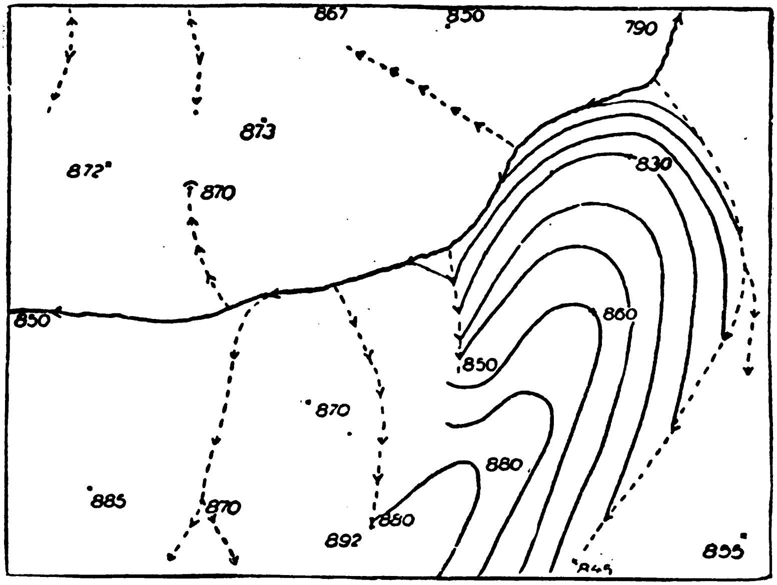
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860
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885
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880
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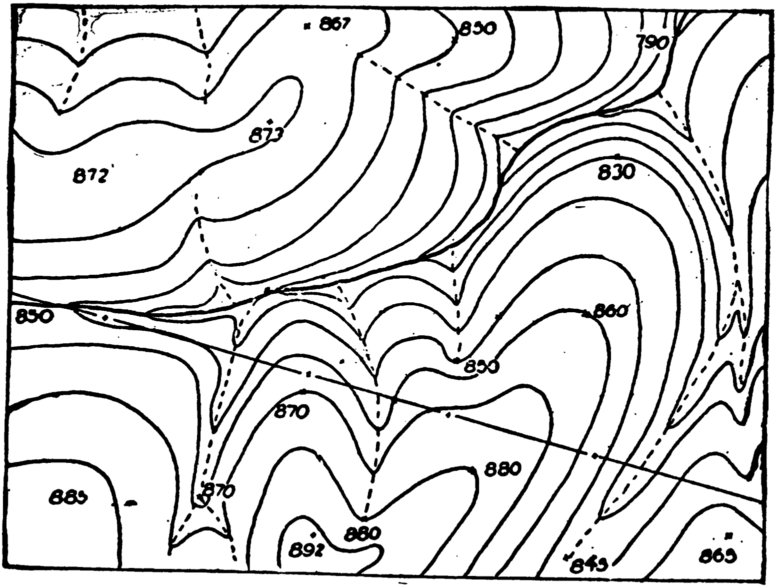
855

Fig. 178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850
790
873
872
830
850
860
850
870
880
885
870
880
892
845
865

Fig. 179

LESSON 21

462. **How to make a scale of paces.** Having determined the length of our pace, any one of the following three methods may be used in making a working scale:

1st method. The so-called "One thousand unit rule" method is as follows:

Multiply the R. F. (representative fraction) by the number of inches in the unit of measure multiplied by 1000; the result will be the length of line in inches necessary to show 1000 units.

For example, let us suppose that we desire a graphic scale showing 1000 yards, the scale of the map being 3 inches equal 1 mile:

Multiply $\frac{1}{21120}$ (R. F.) by 36 (36 inches in 1 yard, the unit of measure) by 1000,—that is,

$$\frac{1}{21120} \times 36 \times 1000 = \frac{36000}{21120} = 1.7046 \text{ inches.}$$

Therefore, a line or graphic scale 1.7 inches in length will represent 1000 yards.

If we desire a working scale of paces at 3 inches to the mile, and we have determined that our pace is 31 inches long, we would have

$$\frac{1}{21120} \times 31 \times 1000 = \frac{31000}{21120} = 1.467 \text{ inches.}$$

We can now lay off this distance and divide it into ten equal parts, and each will give us a 100-pace division.

2nd method. Lay off 100 yards; ascertain how many of your paces are necessary to cover this distance; multiply R. F. by 7,200,000, and divide by the number of paces you take in going 100 yards. The result will be the length of line in inches which will show 2000 of your paces.

3rd method. Construct a scale of convenient length, about 6 inches, as described in Par. 437, to read in the units you intend to measure your distance with (your stride, pace, stride of a horse, etc.), to the scale on which you intend to make your sketch.

For example, suppose your stride is 66 inches long (33-inch pace) and you wish to make a sketch on a scale of 3 inches = 1 mile. The R. F. of this scale is $\frac{3 \text{ inches}}{1 \text{ mile}} = \frac{3 \text{ inches}}{63360 \text{ inches}} = \frac{1}{21120}$. That is 1 inch on your sketch is to represent 21120 inches on the ground. As you intend to measure your ground distances by counting your strides of 66 inches length, 1 inch on the sketch will represent as many of your strides on the ground as 66 is contained into 21120 = 320 strides. For convenience in sketching you wish to make your scale about 6 inches long. Since 1 inch represents 320 strides, 6 inches will represent 6 × 320 = 1,920 strides. As this is an odd number, difficult to divide into convenient subdivisions of hundreds, fifties, etc., construct your scale to represent 2,000 strides, which will give it a length slightly in excess of 6 inches—6.25. Lay off this length and divide it into ten main divisions of 200 strides each, and subdivide these into 50 stride divisions as explained in Par. 436.

463. **Position sketching.** The following are the instruments used in position sketching:

1. Drawing board with attached compass (Fig. 172);
2. Loose ruler, on board (Fig. 172);
3. Rough tripod or camera tripod;
4. Scale of M. D.'s (shown on ruler, Fig. 172);
5. Scale of sketchers, strides or paces (at six inches to one mile), on ruler;
6. Clinometer (not necessary if board has slope board, Fig. 172);
7. Scale of hundreds of yards shown on ruler;
8. Scale of paces.

METHODS TO BE USED

(1) Select a base line,—that is, a central line ¼ to ½ mile long in the area to be sketched. It should have at its ends some plainly marked objects, such as telegraph poles, trees, corners of buildings, etc., and from its ends, and intermediate points, a good view of the area should be possible. The base line selected should be capable of being measured.

(2) Set up, level and orient the drawing board at one end of the base (A), Fig. 171 Y, for example. Draw a meridian on the sheet parallel to the position of the magnetic needle. Assume a point (·A), Fig. 171, Y, corresponding to the ground point (A), 890, on the sheet, in such a position that the area to be sketched will lie on the sheet.

(3) Sight at hilltops, stream junctures, stream heads, etc., to begin the locations of these points by intersection, labelling each ray so as to be able to identify it later.

(4) Traverse to (b) and complete the locations by intersection as previously explained. If the base line is not accurately measured, the map will be correct within itself in all of its proportions, but its scale will not necessarily be the scale desired.

(5) Draw the details of the country between A and B and in the vicinity of this line, using the conventional signs for roads, houses, etc.

(6) The lines from station (b), Fig. 171 X, to any of the other located points may now be used as a new base line to carry the work over additional area.

(7) In case parts of the area are not visible from a base line, these parts are located by traversing as before explained.

(8) Having learned by several repetitions the above steps, the sketcher will then combine contouring with his horizontal locations.

464. **Outpost sketching.** The same instruments are used as in position sketching, and so are the methods the same, except that the sketcher cannot advance beyond the outpost line, toward the supposed position of the enemy. It is often possible to select a measurable base line well in rear of the line of observation,—for instance, along the line of resistance. Secondary base lines may then be taken on or near the line of observation, from the extremities of which additional base lines may be selected,

if necessary, and points toward the enemy's position located by intersection. Details are sketched in as in position sketching. For obvious reasons, no traversing should be done along the line of observation.

465. Road sketching. The following are the instruments used in road sketching:

1. Drawing board or sketching case;
2. Loose ruler;
3. Scale of strides, or paces, if made dismounted; scale of time trotting or walking, if mounted;
4. Scale of hundreds of yards, at three inches to 1 mile;
5. Scale of M. D.'s;
6. Slope board (if clinometer is not available).

METHODS TO BE USED

(1) At station 1, Fig. 180, orient the board as described in Par. 446, holding the board in the hands, in front of the body of the sketcher, who faces toward station 2.

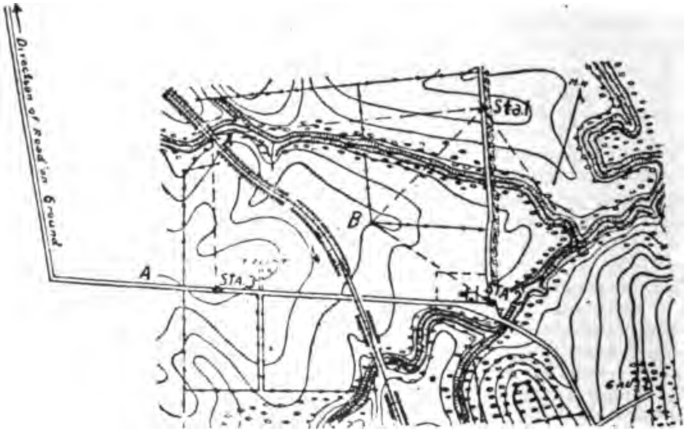


Fig. 183

(2) Important points in the vicinity, such as the railroad bridge, the stream juncture, hilltops, are sighted for intersections, lines drawn as shown and the sketcher traverses to station 2.

(3) At station 2 he locates and draws in all details between station 1 and 2, to include about 300 yards on each side of the road.

(4) The traverse is then continued forward as described for 1 and 2.

(5) After some practice of horizontal sketching, as just described, the sketcher will be able to take up contouring in combination. The methods are as described in the paragraph on contouring.

(6) When the traverse runs off the paper as at A, Fig. 183, the following method is followed: Reorient the board so that the road forward

will lie across the long dimensions of the paper; draw a meridian parallel to the compass needle and assume a point on the new sheet corresponding to the last point (A) plotted on the first sheet.

(7) On completion of the sketch various sections will be pasted together, so that all the meridians are parallel.

466. **Combined sketching.** Let us suppose that we have the rectangle W, X, Y, Z, Fig. 180, assigned to us to map and that we have been given four sketching parties, and that the locations and elevations of A and B have been previously determined by triangulation and are plotted to scale on our rectangle.

A logical step would be to carefully plot the line a′ b′, and then the lines c′ c″ and c″ d.

If the area is densely wooded we run "line of level" by using the slope board or clinometer and by taking elevations at points arbitrarily selected. Our lines will look something like this:

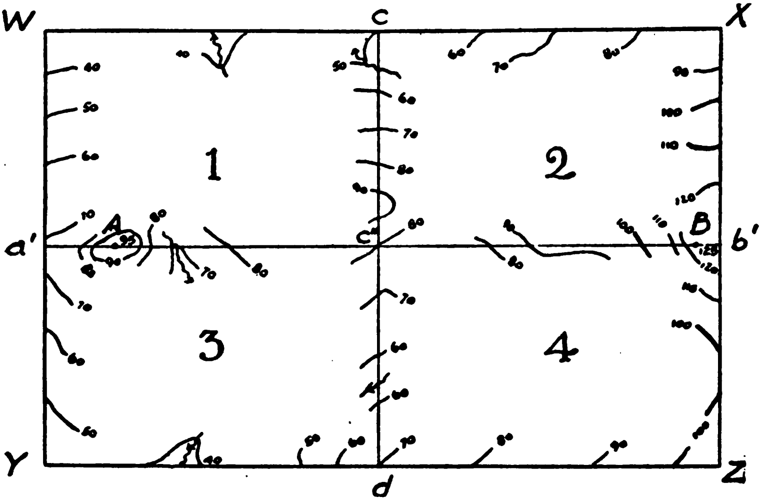


Fig. 180

Each party will be given its rectangle with the traverses sketched in. They will each then run similar traverses over the other two sides of their area and then fill in. In this manner the whole work is tied up to the original lines.

ANOTHER METHOD

The line A B, Fig. 181, is carefully plotted. Each of the four sketching parties has two sketching groups. One group of party No. 1 traverses line a′ Y; then the other group of the party traverses the line a″ y′. The first group of party No. 2 accompanies them. The second group of party No. 2 traverses the line c″ d, accompanied by the first group of party No. 3; the second group of party No. 3, and the first

466 (contd.)

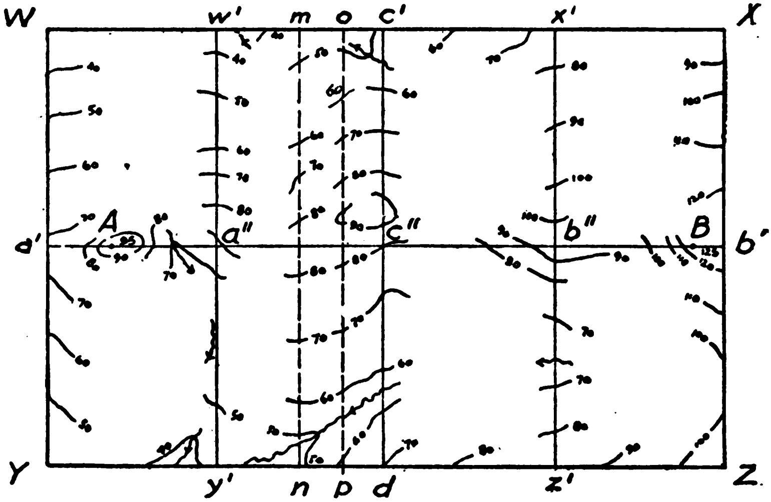


Fig. 181

group of party No. 4 traverse b″ z′, and the second group of party No. 4 traverses b′ Z. When the first group of party No. 1 arrives at Y, it traverses Y y′. The second group of party No. 1, arriving at y′, cuts the sheet along traverse and gives the first group of party No. 2 the part which shows their area; and then traverses toward Y from y′. Upon meeting the first group of party No. 1, they join forces and proceed to fill in their area.

In the same manner areas W X a′ b′ are filled in.

The method described above is useful in working over country which is densely wooded, and in which a general view cannot be obtained, for example, in mapping jungles.

An additional article of the sketcher's equipment is a holder for his pencils, alidade, eraser, knife, pins, etc. This consists of a series of small pockets sewed on to a piece of canvas about 7 inches by 4 inches. This can be attached to the left breast of the sketcher's coat or shirt by means of two pins. In addition to keeping all of his implements in a handy place the holder prevents the loss of the several articles. Nothing is so discouraging to the sketcher as to look for his pencil, eraser, knife or even alidade and find that he has left it several hundred yards back where he sat down last to sketch in details. By using the holder the sketcher gets into the habit of replacing articles after they are used and consequently always has them with him when needed. These holders ready made can be obtained from the Secretary, Army Service Schools at Fort Leavenworth, Kansas.

In sketching a good quality of paper should always be used as erasures will be frequent. A specially prepared paper that has the

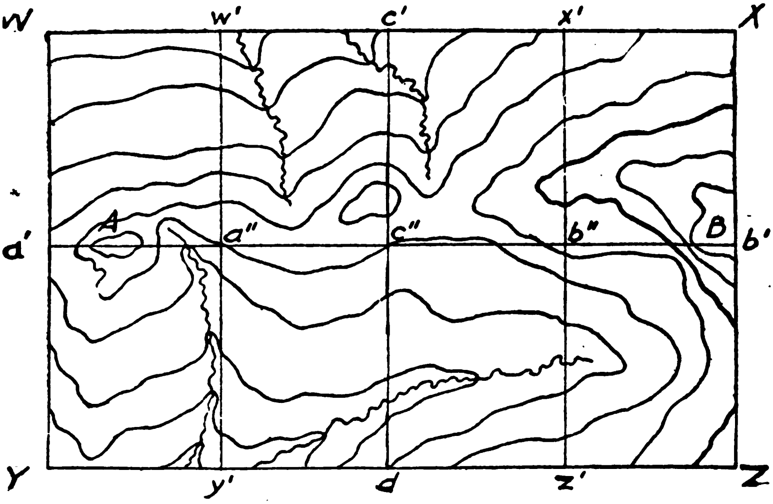


Fig. 182

appearance of oiled paper can be obtained commercially and is excellent for sketching in damp weather. It has considerable resistance to rain. Sheets of celluloid prepared for sketching are invaluable in sketching in the rain. These are a part of the equipment of the case of sketching instruments supplied battalions in the regular army. These sheets may be procured at most any dealers.

POINTS FOR BEGINNERS TO REMEMBER

467. 1. Always keep your pencils sharpened and have an eraser handy. No one but an expert can sketch with a dull pencil.

2. Use hard pencils when learning to sketch—4H to 6H—and go over your work afterwards with a softer pencil—2H.

3. Do not try to put down on your sketch a mass of small details that are too small to be shown on the scale at which you are sketching. For example, if you are making a sketch on a scale of 3 inches = 1 mile, do not try to show each house in a row of houses; simply indicate that there is a row of houses, by putting down several distinct conventional signs for houses in a row; nor should you try to show every little "cut" through which the road may run. Only use about one sign to the inch of telegraph or telephone lines, for wire fences, etc.

4. When first practicing sketching only plot the route over which you walk, indicating it by a single line. When you can do this with facility, go back over one of these plotted routes and fill in the woods, houses, streams and the other large features.

5. The beginner should sketch the same ground several times over—at least three or four times. Practice alone will make perfect.

467 (contd.)

6. Always try to compare your finished sketch with an accurate map of the ground, if one is obtainable. Try to practice on ground of which you can obtain a map.

7. Make each course (the distance you go between points where the direction of your route changes) as long as possible.

8. Do not try to contour until you are expert at making a sketch showing all the flat details (roads, streams, woods, houses, etc.).

9. Never try to ''sketch in'' the contours until you have plotted the stream lines or the direction of the valleys, ravines, etc. The contours are fitted to or sketched around the drainage system; not the drainage system to the contours.

10. Always ''size up'' ground before you sketch it; that is, take a general view of it, noticing the drainage system (the direction in which the streams flow or ravines run), the prominent hills and ridges, the direction the roads run, etc.

11. Above all things, DON'T FAKE ANY PART OF YOUR MAP.

If the man using your map happens to strike the faked portion, he immediately condemns your whole map as incorrect. Every other part may be highly accurate, but your whole map is discredited because the user strikes the bad part first. You will naturally put little faith in the man who has told you something you know to be untrue. You will always suspect him. So it is with maps. Don't put down anything that you don't know to be correct. If any guess work is to be done, let the man using the map do it,—he knows that he is guessing and will be governed accordingly, but if you do the guessing, he doesn't know where the guessing begins and the accurate work leaves off. Don't fudge. Your name is on the map,—*don't have any questionable work hitched up to your name.*

LESSON 22

THE SERVICE OF INFORMATION

(Based on the Field Service Regulations)

PATROLLING

468. Patrols are small bodies of infantry or cavalry, from two men up to a company or troop, sent out from a command at any time to gain information of the enemy and of the country, to drive off small hostile bodies, to prevent them from observing the command or for other stated objects, such as to blow up a bridge, destroy a railroad track, communicate or keep in touch with friendly troops, etc. Patrols are named according to their objects, reconnoitering, visiting, connecting, exploring, flanking patrols, etc. These names are of no importance, however, because the patrol's orders in each case determine its duties.

469. The size of a patrol depends upon the mission it is to accomplish; if it is to gain information only, it should be as small as possible, allowing two men for each probable message to be sent (this permits you to send messages and still have a working patrol remaining); if it is to fight, it should be strong enough to defeat the probable enemy against it. For instance, a patrol of two men might be ordered to examine some high ground a few hundred yards off the road. On the other hand, during the recent war in Manchuria a Japanese patrol of 50 mounted men to accomplish its mission marched 1,160 miles in the enemy's country and was out for 62 days.

470. Patrol Leaders. (a) Patrol leaders, usually noncommissioned officers, are selected for their endurance, keen eyesight, ability to think quickly and good military judgment. They should be able to read a map, make a sketch and send messages that are easily understood. Very important patrol are sometimes led by officers. The leader should have a map, watch, field glass, compass, message blank and pencils.

(b) The ability to lead a patrol correctly without a number of detailed orders or instructions is one of the highest and most valuable qualifications of a noncommissioned officer. Since a commander ordering out a patrol can only give general instructions as to what he desires, because he cannot possibly foresee just what situations may arise, the patrol leader will be forced to use his own judgment to decide on the proper course to pursue when something of importance suddenly occurs. He is in sole command on the spot and must make his decisions entirely on his own judgment and make them instantly. He has to bear in mind first of all his mission—what his commander wants him to do.

Possibly something may occur that should cause the patrol leader to undertake an entirely new mission and he must view the new situation from the standpoint of a higher commander.

(c) More battles are lost through lack of information about the enemy than from any other cause, and it is the patrols led by noncommissioned officers who must gather almost all of this information. A battalion or squadron stands a very good chance for defeating a regiment if the battalion command knows all about the size, position and movements of the regiment and the regimental commander knows but a little about the battalion; and this will all depend on how efficiently the patrols of the two forces are led by the noncommissioned officers.

471. Patrols are usually sent out from the advance party of an advance guard, the rear party of a rear guard, the outguards of an outpost, and the flank (extreme right or left) sections, companies or troops of a force in a fight, but they may be sent out from any part of a command.

The commander usually states how strong a patrol shall be.

472. **Orders or Instructions.** (a) The orders or instructions for a patrol must state clearly whenever possible:

1. Where the enemy is or is supposed to be.
2. Where friendly patrols or detachments are apt to be seen or encountered and what the plans are for the body from which the patrol is sent out.
3. What object the patrol is sent out to accomplish; what information is desired; what features are of special importance; the general direction to be followed and how long to stay out in case the enemy is not met.
4. Where reports are to be sent.

(b) It often happens that, in the hurry and excitement of a sudden encounter or other situation, there is no time or opportunity to give a patrol leader anything but the briefest instructions, such as "Take three men, corporal, and locate their (the enemy's) right flank." In such a case the patrol leader through his knowledge of the general principles of patrolling, combined with the exercise of his common sense, must determine for himself just what his commander wishes him to do.

473. **Inspection of a Patrol Before Departure.** Whenever there is time and conditions permit, which most frequently is not the case, a patrol leader carefully inspects his men to see that they are in good physical condition; that they have the proper equipment, ammunition and ration; that their canteens are full, their horses (if mounted) are in good condition, not of a conspicuous color and not given to neighing, and that there is nothing about the equipment to rattle or glisten. The patrol leader should also see that the men have nothing with them (maps, orders, letters, newspapers, etc.) that, if captured, would give the enemy valuable information. This is a more important inspection than that regarding the condition of the equipment.

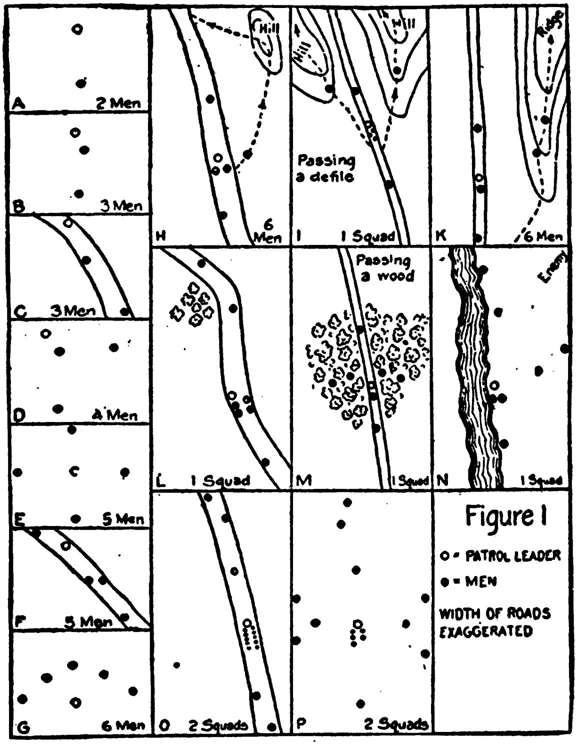
Whenever possible the men for a patrol should be selected for their trustworthiness, experience and knack of finding their way in a strange country.

474. **Preparing a Patrol for the Start.** The patrol leader having received his orders and having asked questions about anything he

does not fully understand, makes his estimate of the situation (See Par. 470.) He then selects the number of men he needs, if this has been left to him, inspects them and carefully explains to them the orders he has received and how he intends to carry out these orders, making sure the men understand the mission of the patrol. He names some prominent place along the route they are going to follow where every one will hasten if the patrol should become scattered.

475. **Co-ordination Before Departure.** Every member of a patrol should notice for himself the direction taken and all landmarks that are passed, and every man should keep his eyes and ears open all the time. Before leaving an outpost position or other place to which it is to return, the patrol commander should "coördinate" himself—he should see where he is with respect to certain mountains, high buildings and other prominent objects, and after the patrol has left, he should frequently turn his head around and see what the starting point looks like from where he is. This will help him to find his way back without difficulty.

THE PRINCIPLES OF PATROLLING


A
2 Men
B
3 Men
C
3 Men
D
4 Men
E
5 Men
F
5 Men
G
6 Men
Hill
H
6 Men
Hill
Hill
Passing a defile
I
1 Squad
Ridge
K
6 Men
L
1 Squad
Passing a wood
M
1 Squad
Enemy
N
1 Squad
O
2 Squads
P
2 Squads
Figure I
o = PATROL LEADER
• = MEN
WIDTH OF ROADS EXAGGERATED

476. Paragraphs 476 to 523 describe the methods of leading a patrol—the points a patrol leader should fully understand. In other words, they state the principles of patrolling. When you first study this chapter, simply read over these principles without trying to memorize any of them. Whenever one of the principles is applied in the solution of any of the problems on patrolling given in this book you will generally find the number of the paragraph which states that principle enclosed in brackets. Turn back and study the paragraph re-

referred to until you thoroughly understand its meaning and you feel sure that you know how to apply that principle whenever the occasion might arise in actual patrolling. Try to impress its common sense meaning (never the mere words) on your mind, so that when a situation arises requiring the sort of action indicated in the principle, YOU WILL NOT FAIL TO RECOGNIZE IT.

477. **Formation of Patrols.** (a) Figure 1 gives some examples of various ways of forming patrols. These are merely examples for the purpose of giving a general idea of the arrangement of the men. In practice common sense must dictate to the patrol leader the best formation in each case.

(b) In very small patrols the leader is usually in advance where he can easily lead the patrol, though not always (See E, Figure 1). The distance between men depends upon the character of the country and the situation.. In Y, Figure 1, it might be anywhere from 150 to 400 yards from the leading man to the last, the distance being greater in level or open country. Some such formation as G, Figure 1, could be used in going through high brush, woods, or over very open country.

(c) The men must be so arranged that each man will be within signaling distance of some member of the patrol and the escape of at least one man, in case of surprise, is certain.

It must be remembered that the patrol may have to march a long distance before it is expected that the enemy will be encountered, or it may have a mission that requires it to hurry to some distant point through very dangerous country. In such cases the patrol will probably have to follow the road in order to make the necessary speed, and it will not be possible for flankers to keep up this rate marching off the road. The formation in such cases would be something like those shown in F, H and O.

Marching off the road is always slow work, so when rapidity is essential, some safe formation for road travel is necessary, as in F, L and O.

If, from the road the country for, say one-half mile on each side, can be seen, there is absolutely no use in sending out flankers a few hundred yards from the road. Use common sense.

478. **Rate of March.** (a) Patrols should advance quickly and quietly; be vigilant and make all practicable use of cover. If rapid marching is necessary to accomplish the mission, then little attention can be paid to cover.

(b) Returning patrols, near their own lines, march at a walk, unless pressed by the enemy. A patrol should not, if possible, return over its outgoing route, as the enemy may have observed it and be watching for its return.

479. **Halts.** A patrol should be halted once every hour for about ten minutes, to allow the men to rest and relieve themselves. Whenever a halt is made one or two members of the patrol must advance a short distance ahead and keep a sharp lookout to the front and flanks.

480. **Action Upon Meeting Hostile Patrol.** If a patrol should see a hostile patrol, it is generally best to hide and let it go by, and afterwards look out for and capture any messenger that may be sent back from it with messages for the main body. And when sent back yourself with

a message, be careful that the enemy does not play this trick on you—always keep your ears and eyes open.

481. **Scattered Patrols.** A scattered patrol reassembles at some point previously selected; if checked in one direction, it takes another; if cut off, it returns by a detour or forces its way through. As a last resort it scatters, so that at least one man may return with information.

Occasionally it is advisable for the leader to conceal his patrol and continue the reconnaissance with one or two men; in case of cavalry the leader and men thus detached should be well mounted. If no point of assembly was previously agreed upon, it is a good general rule to reassemble, if possible at the last resting place.

482. **Return by Different Route.** A patrol should always make it a rule to return by a different route as this may avoid its being captured by some of the enemy who saw it going out and are lying in wait for it.

483. **Guard Against Being Cut off.** When out patrolling always guard against being cut off. Always assume that any place that affords good cover is held by the enemy until you know that it is not, and be careful not to advance beyond it without first reconnoitering it; for, if you do, you may find yourself cut off when you try to return.

484. **Night Work.** Patrols far from their commands or in contact with the enemy, often remain out over night. In such cases they seek a place of concealment unknown to the inhabitants, proceeding thereto after nightfall or under cover. Opportunities for watering, feeding and rest must not be neglected, for there is no assurance that further opportunities will present themselves. When necessary the leader provides for subsistence by demand or purchase.

485. **Civilians.** In questioning civilians care must be taken not to disclose information that may be of value to the enemy. Strangers must not be allowed to go ahead of the patrol, as they might give the enemy notice of its approach. Patrol leaders are authorized to seize telegrams and mail matter, and to arrest individuals, reporting the facts as soon as possible.

486. **Patrol Fighting.** **(a)** A patrol sent out for information never fights unless it can only get its information by fighting or is forced to fight in order to escape. This principle is the one most frequently violated by patrol leaders, particularly in peace maneuvers. They forget their mission—the thing their commander sent them out to do—and begin fighting, thus doing harm and accomplishing no important results.

(b) A patrol sent out to drive off hostile detachments has to fight to accomplish its mission. Sometimes a patrol has orders both to gain information and to drive back hostile patrols. In this case it may be proper to avoid a fight at one moment and to seek a fight at another. The patrol leader must always think of his mission when deciding on the proper course to follow, and then use common sense.

487. **Signals.** The following should be clearly understood by members of a patrol:

Enemy in sight in small numbers: Hold the rifle above the head horizontally.

Enemy in force: Same as preceding, raising and lowering the rifle several times.

Take cover: A downward motion of the hand.

Other signals may be agreed upon before starting, but they must be simple and familiar to the men; complicated signals must be avoided. Signals must be used cautiously, so as not to convey information to the enemy.

The patrol leader should see that all his men thoroughly understand that whenever they are away from the center of the patrol they must look to the nearest man for signals at least once every minute. It should never be necessary for the patrol leader to call to a man in order to get his attention. All movements of men at a distance should be regulated by signals and the men should constantly be on the lookout for these signals.

488. Messages. **(a)** The most skilful patrol leading is useless unless the leader fully understands when to send a message and how to write it.

(b) A message whether written or verbal, should be short and clear, resembling a telegram. If it is a long account it will take too much time to write, be easily misunderstood, and if verbal, the messenger will usually forget parts of it and confuse the remainder.

(c) Always state when and where things are seen or reported. If haste is required, do not use up valuable moments writing down the day of the month, etc. These data are essential as a matter of future record for formal telegrams and should be put in patrol messages only when time is abundant, but never slight the essential points of information that will give valuable help to your chief. Always try to put yourself in his place—not seeing what you see and read your message—and then ask yourself, What will he want to know?

(d) The exact location of the enemy should be stated; whether deployed, marching or in camp, his strength, arm of the service (cavalry, infantry or artillery), and any other detail that you think would be valuable information for your chief. In giving your location do not refer to houses, streets, etc., that your chief in the rear has no knowledge of. Give your direction and distance from some point he knows of or, if you have a map like his you can give your map location.

(e) Be sure your message is accurate. This does not mean that something told you should not be reported, but it should be reported, not as a fact, but as it is—a statement by somebody else. It is well to add any information about your informant, such as his apparent honesty, the probability of his having correct information, etc.—this may help your chief.

(f) A message should always end with a short statement of what you are going to do next. For example: "Will remain in observation," "Will continue north," "Will work around to their rear," etc. Time permitting, the bearer of a verbal message should always be required to repeat it before leaving.

(g) The following is a reproduction of a message blank used in field service. The instructions on the envelope are also given. A patrol leader will usually be furnished with a pad of these blanks.

489. A message should be sent as soon as the enemy is first seen or reported. Of course, if the enemy is actually known to be in the vicinity and his patrols have been seen, etc., you must by all means avoid wasting your men by sending them back with information about small hostile patrols or other things you know your chief is already aware of and did not specifically tell you to hunt for.

If you have properly determined in your own mind what your mission is then you will have no trouble in deciding when to send messages. For example, suppose your orders are "To reconnoiter along that ridge and determine if the enemy is present in strength," and you sight a patrol of eight men. You would waste no time or men sending back any message about the patrol, for your mission is to find out if strong bodies of the enemy are about. But suppose that while working under the above orders you located a hostile battalion of infantry—a large body of troops. In this case you would surely send a detailed message, as your mission is to determine if the enemy was present in strength.

Again, suppose that while moving towards the ridge indicated by your chief in his orders you saw his force suddenly and heavily fired on from a new and apparently unexpected quarter, not a great distance from you, but not on the ridge referred to. You know or believe none of your patrols are out in that neighborhood. In this case you should realize instantly, without any order, that your mission had changed and you should hasten to discover the size and position of this new enemy and send the information back to your chief, first notifying him of your intended change of direction.

Never forget your mission in the excitement of leading your own little force.

490. **Absence of the Enemy.** It is frequently just as important to send a message to your chief that the enemy is not in a certain locality as it is to report his actual whereabouts. You must determine from your mission when this is the case. For example, if you were ordered "To patrol beyond that woods and see if any hostile columns are moving in that direction," and on reaching the far side of the woods you had a good view of the country for some distance beyond, it would be very important to send a message back telling your chief that you could see, say, one-half mile beyond the woods and there was no enemy in sight. This information would be of the greatest importance to him. He might feel free to move troops immediately from that vicinity to some more dangerous place. You would then continue your reconnaissance further to the front.

SUGGESTIONS FOR GAINING INFORMATION ABOUT THE ENEMY

491. **Enemy on the March.** **(a)** The patrol should observe the march of the column from a concealed position that hostile patrols or flankers are not apt to search (avoid conspicuous places). Always try to discover if one hostile detachment is followed by another—if what can be seen appears to be an advance guard of a larger body not yet in view. The distance between the detachments, their relative size, etc., are always important.

(b) Estimating Strength of Column. The strength of a column may be estimated from the length of time it takes to pass a selected point. As infantry in column of squads occupies half a yard per man, cavalry one yard per horse and artillery in single file twenty yards per gun or caisson (ammunition wagon), a selected point would be passed in one minute by 175 infantry; 110 cavalry (at a walk); 200 cavalry at a trot and 5 guns or caissons. If marching in columns of twos, take one-half of the above figures.

(c) **Dust.** The direction of march, strength and composition (infantry, cavalry or artillery) of a column can be closely estimated from the length and character of the cloud of dust that it makes. Dust from infantry hangs low; from cavalry it is higher, disperses more quickly, and, if the cavalry moves rapidly, the upper part of the cloud is thinner; from artillery and wagons, it is of unequal height and disconnected. The effect of the wind blowing the dust must be considered.

(d) **Trail of Column.** Evenly trodden ground indicates infantry; prints of horseshoes mean cavalry and deep and wide wheel tracks indicate artillery. If the trail is fresh, the column passed recently; if narrow, the troops felt secure and were marching in column of route; if broad they expected an action and were prepared to deploy. A retreating army makes a broad trail across fields, especially at the start.

Always remember that the smallest or most insignificant things, such as the number of a regiment or a discarded canteen or collar ornament, may give the most valuable information to a higher commander. For example, the markings on a discarded canteen or knapsack might prove to a general commanding an army that a certain hostile division, corps, or other force was in front of him when he thought it had not been sent into the field. The markings on the canteen would convey little or no meaning to the patrol leader, but if he realized his duty he would take care to report the facts. Cavalry patrols working far ahead of the foot troops should be most careful to observe and report on such details.

(e) **Reflection of Weapons.** If brilliant, the troops are marching toward you, otherwise they are probably marching away from you.

Enemy in Position. (a) If an outpost line, the patrol locates the line of sentinels, their positions, the location and strength of the outguards and, as far as possible, all troops in rear. The location of the flanks of the line, whether in a strong or weak position, is of the utmost importance. Places where the line may be most easily penetrated should be searched for and the strength and routes of the hostile patrols observed.

As outposts are usually changed at dawn this is the best time to reconnoiter their positions.

(b) A hostile line of battle is usually hard to approach, but its extent, where the flanks rest and whether or not other troops are in rear of these flanks, should be most carefully determined.

Information as to the flanks of any force, the character of the country on each flank, etc., is always of the greatest importance, because the flanks are the weakest portions of a line. In attacking an enemy an effort is almost always made to bring the heaviest fire or blow to bear on one of his flanks. Naturally all information about this most vulnerable part of an enemy is of great importance.

492. **Prisoners.** When a patrol is ordered to secure prisoners they should be questioned as soon as captured, while still excited and their replies can in a way be verified. Their answers should be written down (unknown to them) and sent back with them as a check on what they may say on second thought.

Prisoners should always be questioned as to the following points: What regiment, brigade, division, etc., they belong to; how long they have been in position, on the march, etc.; how much sickness in their organization; whether their rations are satisfactory; who commands their troops, etc. Always try to make the prisoners think the questions are asked out of mere curiosity.

493. **Camp Noises.** The rumble of vehicles, cracking of whips, neighing of horses, braying of mules and barking of dogs often indicate the arrival or departure of troops. If the noise remains in the same place and new fires are lighted, it is probable that reënforcements have arrived. If the noise grows more indistinct, the troops are probably withdrawing. If, added to this, the fires appear to be dying out, and the enemy seems to redouble the vigilance of the outposts, the indications of retreat are strong.

494. **Abandoned Camps.** (a) Indications are found in the remains of camp fires. They will show, by their degree of freshness, whether much or little time elapsed since the enemy left the place, and the quantity of cinders will give an indication of the length of time he occupied it. They will also furnish a means of estimating his force approximately, ten men being allowed to each fire.

(b) Other valuable indications in regard to the length of time the position was occupied and the time when it was abandoned may be found in the evidence of care or haste in the construction of huts or shelters, and in the freshness of straw, grain, dung or the entrails of slaughtered animals. Abandoned clothing, equipments or harness will give a clue to the arms and regiments composing a retreating force. Dead horses lying about; broken weapons, discarded knapsacks, abandoned and broken-down wagons, etc., are indications of the fatigue and demoralization of the command. Bloody bandages lying about, and many fresh graves, are evidences that the enemy is heavily burdened with wounded or sick.

495. **Flames or Smoke.** If at night the flames of any enemy's camp fires disappear and reappear, something is moving between the observer and the fires. If smoke as well as flame is visible, the fires are very near. If the fires are very numerous and lighted successively, and if soon after being lighted they go out it is probable the enemy is preparing a retreat and trying to deceive us. If the fires burn brightly and clearly at a late hour, the enemy has probably gone, and has left a detachment to keep the fires burning. If, at an unusual time, much smoke is seen ascending from an enemy's camp, it is probable that he is engaged in cooking preparatory to moving off.

If lines of smoke are seen rising at several points along a railway line in the enemy's rear, it may be surmised that the railroad is being destroyed by burning the crossties, and that a retreat is planned.

496. **Limits of vision.** (a) On a clear day a man with good vision can see:

At a distance of 9 to 12 miles, church spires and towers;
At a distance of 5 to 7 miles, windmills;
At a distance of 2½ miles, chimneys of light color;
At a distance of 2,000 yards, trunks of large trees;
At a distance of 1,000 yards, single posts;
At 500 yards the panes of glass may be distinguished in a window.

496 (contd.)

(b) Troops are visible at 2,000 yards, at which distance a mounted man looks like a mere speck; at 1,200 yards infantry can be distinguished from cavalry; at 1,000 yards a line of men looks like a broad belt; at 600 yards the files of a squad can be counted, and at 400 yards the movements of the arms and legs can be plainly seen.

(c) The larger, brighter or better lighted an object is, the nearer it seems. An object seems nearer when it has a dark background than when it has a light one, and closer to the observer when the air is clear than when it is raining, snowing, foggy or the atmosphere is filled with smoke. An object looks farther off when the observer is facing the sun than when he has his back to it. A smooth expanse of snow, grain fields or water makes distances seem shorter than they really are.

LESSON 23

SUGGESTIONS FOR THE RECONNAISSANCE OF VARIOUS POSITIONS AND LOCALITIES

497. Cross roads should be reconnoitered in each direction for a distance depending on how rapidly the patrol must continue on, how far from the main road the first turn or high point is, etc. The main body of the patrol usually remains halted near the crossroads, while flankers do the reconnoitering.

498. **Heights.** In reconnoitering a height, if the patrol is large enough to admit of detaching them, one or two men climb the slope on either flank, keeping in sight of the patrol, if possible. In any case, one man moves cautiously up the hill, followed by the others in the file at such distance that each keeps his predecessor in view.

499. **Defiles.** On approaching a defile, if time permits, the heights on either side are reconnoitered by flankers before the patrol enters. If the heights are inaccessible or time is urgent, the patrol passes through, in single file at double time. The same method is adopted in reconnoitering a railroad cut or sunken road.

500. **Bridges and Fords.** At a bridge or ford, the front of the patrol is contracted so as to bring all the men to the passage. The leading patrolers cross first and reconnoiter the far side to prevent the possibility of the enemy surprising the main body of the patrol as it is crossing the bridge. The patrol then crosses rapidly, and takes up a proper formation. A bridge is first examined to see that it is safe and has not been tampered with by the enemy.

501. **Woods.** The patrol enters a wood in skirmishing order, the intervals being as great as may be consistent with mutual observation and support on the part of the members of the patrol. On arriving at the farther edge of the wood, the patrol remains concealed and carefully looks about before passing out to open ground. When there is such a growth of underbrush as to make this method impracticable, and it is necessary to enter a wood by a road, the road is reconnoitered as in case of defile, though not usually at double time.

502. **Enclosures.** In reconnoitering an enclosure, such as a garden, park or cemetery, the leading patrolers first examine the exterior, to make sure that the enemy is not concealed behind one of the faces of the enclosure. They then proceed to examine the interior. Great care is taken in reconnoitering and entering an enclosure to avoid being caught in a confined or restricted space by the enemy.

503. **Positions.** In approaching a position, but one man advances (one is less liable to be detected than two or more), and he crawls cautiously toward the crest of the hill or edge of the wood or opening

of the defile, while the others remain concealed in the rear until he signals them to advance.

504. **Houses.** When a house is approached by a patrol, it is first reconnoitered from a distance, and if nothing suspicious is seen, it is then approached by one or two men, the rest of the party remaining concealed in observation. If the patrol is large enough to admit of it, four men approach the house, so as to examine the front and back entrances at the same time. Only one man enters the door, the others remaining outside to give the alarm, should a party of the enemy be concealed in the house. The patrol does not remain in the vicinity of the house any longer than necessary, as information relative to its numbers and movements might be given to the enemy, if a hostile party should subsequently visit the place. Farmhouses are searched for newspapers and the inhabitants questioned. If necessary to go up to a building, wood or hill, where an enemy is likely to be concealed, run for the last couple of hundred yards, having your rifle ready for instant use, and make for some point that will afford you cover when you get close up. In the case of a building, for instance, you would make for one of the corners. Such a maneuver would probably be disconcerting to anyone who might be lying in wait for you, and would be quite likely to cause them to show themselves sooner than they intended, and thus give you a chance to turn around and get away. If they fired on you while you were approaching at a run, they would not be very likely to hit you.

505. **Villages.** (a) In approaching a small village one or two men are sent in to reconnoiter and one around each flank, but the main body does not enter until the scouts have reported. In small patrols of three to six men so much dispersion is not safe and only one section of the village can be reconnoitered at a time.

(b) If the presence of the enemy is not apparent, the patrol enters the village. A suitable formation would be in single file at proper distance, each man being on the opposite side of the street from his predecessor, thus presenting a more difficult target for hostile fire and enabling the men to watch all windows.

(c) If the patrol is strong enough, it seizes the postoffice, telegraph office and railroad stations, and secures all important papers, such as files of telegrams sent and received, instructions to postmasters, orders of town mayor, etc., that may be there. If the patrol is part of the advance guard, it seizes the mayor and postmaster of the place and turns them over to the commander of the vanguard with the papers seized.

(d) While searching a village sentinels are placed at points of departure to prevent any of the inhabitants from leaving. Tall buildings and steeples are ascended and an extensive view of the surrounding country obtained.

(e) At night a village is more cautiously approached by a small party than by day. The patrol glides through back alleys, across gardens, etc., rather than along the main street. If there are no signs of the enemy, it makes inquiry. If no light is seen, and it seems imprudent to rouse any of the people, the patrol watches and captures one of the inhabitants, and gets from him such information as he may possess.

(f) The best time for the patrol to approach a village is at early dawn, when it is light enough to see, but before the inhabitants are up. It is dangerous in the extreme for a small patrol to enter a village unless it is certain that it is not occupied by the enemy, for the men could be shot down by fire from the windows, cellarways, etc., or entrapped and captured. As a rule large towns and cities are not entered by small patrols, but are watched from the outside, as a small force can not effectively reconnoiter and protect itself in such a place.

FACTS WHICH SHOULD BE OBTAINED BY PATROLS REGARDING CERTAIN OBJECTS

506. **Roads.** Their direction, their nature (macadamized, corduroy, plank, dirt, etc.), their condition of repair, their grade, the nature of crossroads, and the points where they leave the main roads; their borders (woods, hedges, fences or ditches), the places at which they pass through defiles, cross heights or rivers, and where they intersect railroads, their breadth (whether suitable for column of fours or platoons, etc.).

507. **Railroads.** Their direction, gauge, the number of tracks, stations and junctions, their grade, the length and height of the cuts, embankments and tunnels.

508. **Bridges.** Their position, their width and length, their construction (trestle, girder, etc.), material (wood, brick, stone or iron), the roads and approaches on each bank.

509. **Rivers and Other Streams.** Their direction, width and depth the rapidity of the current, liability to sudden rises and the highest and lowest points reached by the water, as indicated by drift wood, etc., fords, the nature of the banks, kinds, position and number of islands at suitable points of passage, heights in the vicinity and their command over the banks.

510. **Woods.** Their situation, extent and shape; whether clear or containing underbrush; the number and extent of "clearings" (open spaces); whether cut up by ravines or containing marshes, etc.; nature of roads passing through them.

511. **Canals.** Their direction, width and depth; condition of towpaths; locks and means of protecting or destroying them.

512. **Telegraphs.** Whether they follow railroads or common roads; stations, number of wires.

513. **Villages.** Their situation (on a height, in a valley or on a plain); nature of the surrounding country; construction of the houses, nature (straight or crooked) and width of streets; means of defense.

514. **Defiles.** Their direction; whether straight or crooked; whether heights on either side are accessible or inaccessible; nature of ground at each extremity; width (frontage of column that can pass through).

515. **Ponds and Marshes.** Means of crossing; defensive use that might be made of them as obstacles against enemy; whether the marshy grounds are practicable for any or all arms.

516. **Springs and Rivulets.** Nature of approaches; whether water is drinkable and abundant.

517. **Valleys.** Extent and nature; towns, villages, hamlets, streams, roads and paths therein; obstacles offered by or in the valley, to the movement of troops.

518. **Heights.** Whether slopes are easy or steep; whether good defensive positions are offered; whether plateau is wide or narrow; whether passages are easy or difficult; whether the ground is broken or smooth, wooded or clear.

SUGGESTIONS FOR PATROLS EMPLOYED IN EXECUTING DEMOLITION

(Destruction or blocking of bridges, railroads, etc.)

519. **Patrols never execute any demolition unless specifically ordered to do so.** Demolition may be of two different characters: Temporary demolition, such as cutting telegraph wires in but a few places or merely burning the flooring of bridges, removing a few rails from a track, etc., and permanent demolition, such as cutting down an entire telegraph line, completely destroying bridges, blowing in tunnels, etc. Only temporary demolition will be dealt with in this book.

520. **Telegraph Line.** To temporarily disable telegraph lines, connect up different wires close to the glass insulators, wrap a wire around all the wires and bury its ends in the ground (this grounds or short circuits the wire), or cut all the wires in one or two places.

521. **Railroads.** To temporarily disable railroads remove the fish plates (the plates that join the rails together at the ends) at each end of a short section of track, preferably upon an embankment, then have as many men as available raise the track on one side until the ties stand on end and turn the section of track so that it will fall down the embankment; or, cut out rails by a charge of dynamite or gun cotton placed against the web and covered up with mud or damp clay. Eight to twelve ounces of explosive is sufficient. Or blow in the sides of deep cuts or blow down embankments. Bridges, culverts, tunnels, etc., are never destroyed except on a written order of the commander-in-chief.

522. **Wagon Road.** **(a)** Bridges can be rendered temporarily useless by removing the flooring, or, in the case of steel bridges, by burning the flooring (if obtainable, pour tar or kerosene on flooring), particularly if there is not time to remove it.

Short culverts may sometimes be blown in.

A hastily constructed barricade across a bridge or in a cut of trees, wagons, etc., may be sufficient in some cases where only the temporary check of hostile cavalry or artillery is desired.

(b) The road bed may be blocked by digging trenches not less than thirty feet wide and six feet deep, but as this would take a great deal of time patrols would rarely be charged with such work.

523. **Report on Return of Patrol.** On returning the patrol leaders should make a short verbal or written report, almost always the former, briefly recounting the movements of the patrol, the information obtained of the enemy, a description of the country passed over and of friendly troops encountered. Of course, this is not practicable when the situation is changing rapidly and a returning patrol is immediately engaged in some new and pressing duty.

Report of Sergeant Wm. James's Patrol of Five Men

Support. No. 1,
Outpost of 6th Inf., Near Dixon,
22 Aug. 12, 2-30 to 5 p. m.

The patrol followed the timber along the creek for one mile S. from our outguards and leaving the creek bottom moved ½ mile S. E. to the wooded hill (about 800 ft. high), visible from our lines.

From this hill top the valley to the east (about one mile wide) could be fairly well observed. No signs of the enemy were seen and a message, No. 1, was sent back by Private Russel.

A wagon road runs N. and S. through the valley, bordered by four or five farms with numerous orchards and cleared fields. Both slopes of the valley are heavily wooded.

The patrol then moved S. W., until it struck the macadam pike which runs N. and S., through our lines. Proceeding S. 400 yds. on this pike to a low hill a farmer, on foot, was met. Said he lived one mile further S.; was looking for some loose horses; that four hostile cavalrymen, from the east, stopped at his farm at noon, drank some milk, took oats for their horses, inquired the way to Dixon and rode off in that direction within fifteen minutes. He said they were the first hostiles he had seen; that they told nothing about themselves, and they and their horses looked in good condition. Farmer appeared friendly and honest.

The patrol then returned to our lines following the pike about two miles. Road is in good condition, low hedges and barbed wire fences, stone culverts and no bridges in the two miles. Bordering country is open and gently rolling farming country and all crops are in. A sketch is attached to this report. None of our patrols was seen.

Respectfully submitted,
Wm. James,
Sergeant, Co. A, 6th Infy.

524. Problem in Patrol Leading and Patrolling

In studying or solving tactical problems on a map you must remember that unless you carefully work out your own solution to the problem before looking at the given solution, you will practically make no progress.

It is best, if your time permits, to write out your solutions, and when you read over the given solutions, compare the solution of each point with what you thought of that same point when you were solving the problem, and consider why you did just what you did. Without this comparison much of the lasting benefit of the work is lost.

In some of these problems both the problem and solutions are presented in dialogue form so as to give company officers examples of the best method of conducting the indoor instruction of their men in minor tactics. It also gives an example of how to conduct a tactical walk out in the country, simply looking at the ground itself, instead of a map hanging on the wall. The enlarged Elementary Map referred to in Par. 439a is supposed to be used in this instruction as well as in the war games.

THE SERVICE OF SECURITY

(Based on the Field Service Regulations)

General Principles

526. **The Service of Security** embraces all those measures taken by a military force to protect itself against surprise, annoyance or observation by the enemy. On the march, that portion of a command thrown out to provide this security is called an advance, flank or rear guard, depending on whether it is in front, to the flank, or in rear of the main command; in camp or bivouac, it is called the outpost.

The principal duties of these bodies being much the same, their general formations are also very similar. There is (1) the cavalry covering the front; next (2) a group (4 men to a platoon) or line of groups in observation; then (3) the support, or line of supports, whose duty is to furnish the men for the observation groups and check an enemy's attempt to advance until reinforcements can arrive; still farther in rear is (4) the reserve.

In small commands of an infantry regiment or less there usually will not be any cavalry to cover the front, and the reserve is generally omitted. Even the support may be omitted and the observation group or line of groups be charged with checking the enemy, in addition to its regular duties of observation. But whatever the technical designation of these subdivisions, the rearmost one is always in fact a reserve. For example, if the command is so small that the subdivision formally designated as the reserve is omitted, the rear element (squad or platoon or company, etc.) is used as a reserve. As this text deals principally with small commands and only those larger than a regiment usually have the subdivision termed the reserve, this distinction between the element in the Field Service Regulations called the reserve and the actual reserve, must be thoroughly understood.

The arrangements or formations of all detachments thrown out from the main force to provide security against the enemy, are very flexible, varying with every military situation and every different kind of country. The commander of such a detachment must, therefore, avoid blindly arranging his men according to some fixed plan and at certain fixed distances. Acquire a general understanding of the principles of the service of security and then with these principles as a foundation use common sense in disposing troops for this duty.

ADVANCE GUARD

527. **Definition and Duties.** An advance guard is a detachment of a marching column thrown out in advance to protect the main column from being surprised and to prevent its march from being delayed or interrupted. (The latter duty is generally forgotten and many irritating, short halts result, which wear out or greatly fatigue the main body, the strength of which the advance guard is supposed to conserve.)

In detail the duties of the advance guard are:

1. To guard against surprise and furnish information by reconnoitering to the front and flanks.
2. To push back small parties of the enemy and prevent their observing, firing upon or delaying the main body.

3. To check the enemy's advance in force long enough to permit the main body to prepare for action.

4. When the enemy is met on the defenses, seize a good position and locate his lines, care being taken not to bring on a general engagement unless the advance guard commander is authorized to do so.

5. To remove obstacles, repair the road, and favor in every way possible the steady march of the column.

528. Strength: The strength of the advance guard varies from one-ninth to one-third of the total command. The larger the force the larger in proportion is the advance guard, for a larger command takes relatively longer to prepare for action than a small one. For example a company of 100 men would ordinarily have an advance guard of from one to two squads, as the company could deploy as skirmishers in a few seconds. On the other hand, a division of 20,000 men would ordinarily have an advance guard of about 4,500 men, all told, as it would require several hours for a division to deploy and the advance guard must be strong enough to make a stubborn fight.

529. Composition. The advance guard is principally composed of infantry, preceded if possible, by cavalry well to the front. When there is only infantry, much more patrolling is required of the front troops than when cavalry (called "Advance cavalry") is out in advance. This book does not deal with large advance guards containing artillery and engineers. Machine guns, however, will be frequently used in small advance guards to hold bridges, defiles, etc.

530. Distance From Main Body. The distance at which the advance guard precedes the main body or the main body follows the advance guard depends on the military situation and the ground. It should always be great enough to allow the main body time to deploy before it can be seriously engaged. For instance the advance guard of a company, say 1 squad, should be 350 to 500 yards in advance of the company. The distance from the leading man back to the principal group of the squad should generally be at least 150 yards. This, added to the distance back to the main body or company makes a distance of from 500 to 650 yards from the leading man to the head of the main body.

Examples:

Command	Advance Guard	Distance (yds.)
Patrol of 1 squad	2 men	100 to 300
Section of 3 squads	4 men	200 to 400
Inf. platoon of 50 men	1 squad	300 to 450
Cav. platoon of 20 men	4 men	300 to 450
Inf. company of 108 men	1 to 2 squads	350 to 500
Cav. troop of 86 men	½ platoon	450 to 600
Inf. battalion	½ to 1 company	500 to 700
Cav. squadron	½ to 1 troop	600 to 800

These are not furnished as fixed numbers and distances, but are merely to give the student an approximate, concrete idea.

531. Connecting Files. It should be remembered that between the advance guard and the main body, and between the several groups into which the advance guard is subdivided, connecting files are placed so as to furnish a means of communicating, generally by signals, between the elements (groups) of the column. There should be a connecting file for at least every 300 yards. For example, suppose the advance guard of a platoon is 300 yards in front of the main body. In ordinary rolling country, not heavily wooded, a connecting file would be placed half way between the two elements—150 yards from each one.

It is generally wiser to use two men together instead of one, because this leaves one man free to watch for signals from the front while the other watches the main body. However, in very small commands like a company, this is not practicable, as the extra man could not be spared.

FORMATION OF ADVANCE GUARDS

532. **Subdivisions.** The advance guard of a large force like a brigade or division is subdivided into a number of groups or elements, gradually increasing in size from front to rear. The reason for this is that, as has already been explained, a larger group or force requires longer to deploy or prepare to fight than a smaller one, therefore the small subdivisions are placed in front where they can quickly deploy and hold the enemy temporarily in check while the larger elements in rear are deploying. The number of these subdivisions decreases as the strength of the advance guard decreases, until we find the advance guard of a company consists of one or two squads, which naturally cannot be subdivided into more than two groups; and the advance guard of a squad composed of two men, which admits of no subdivision.

			Distance to next element in rear.
Advance Cavalry			1 to 5 miles
Support	**Advance party (furnishes patrols)**	**Point**	150 to 300 yds.
		Advance party proper	300 to 600 yds.
	Support proper		400 to 800 yds.
Reserve (usually omitted in small commands)			500 yds. to 1 mile

The distances vary principally with the size of the command—slightly with the character of the country.

The advance cavalry is that part of the advance guard going in front of all the foot troops. It is generally one to five miles in advance of the infantry of the advance guard, reconnoitering at least far enough to the front and flanks to guard the column against surprise by artillery fire—4,500 yards.

533. **Support.** **(a)** The support constitutes the principal element or group of all advance guards. It follows the advance cavalry, when there is any, and leads the advance guard when there is no cavalry. The support of a large command is subdivided within itself in much the same manner as the advance guard as a whole is subdivided. It varies in strength from one-fourth to one-half of the advance guard.

534. **(b) Advance Party.** As the support moves out it sends forward an advance party several hundred yards, the distance varying with the nature of the country and size of the command. For example, the advance party of a support of one company of 108 men, would ordinarily be composed of one section of three squads, and would march about 300 yards in advance of the company in open country, and about 200 yards in wooded country.

The advance party sends out the patrols to the front and flanks to guard the main body of the support from surprise by effective rifle fire.

Patrols are only sent out to the flanks to examine points that cannot be observed from the road. As a rule they will have to rejoin some portion of the column in rear of the advance party. As the advance party becomes depleted in strength in this manner, fresh men are sent forward from the main body of the support to replace those who have fallen behind while patrolling. When there is advance cavalry, much less patrolling is required of the infantry.

(c) The point is a patrol sent forward by the advance party 150 to 300 yards. When the advance party is large enough the point should ordinarily consist of a complete squad, commanded by an officer or experienced noncommissioned officer. It is merely a patrol in front of the column and takes the formation described for patrols.

(d) The commander of the support ordinarily marches with the advance party. He should have a map and control of the guide, if any is present. He sees that the proper road is followed; that guides are left in towns and at crossroads; that bridges, roads, etc., are repaired promptly so as not to delay the march of the column and that information of the enemy is promptly sent back to the advance guard commander; he verifies the correctness of this information, if possible.

535. (a) A thorough understanding of the arrangement of the support and the duties of the leaders of its subdivisions—point, flank patrols, advance party and main body (of the support)—is of the greatest importance to a noncommissioned officer. For example, the ignorance of one noncommissioned officer leading the advance party of a column of troops six miles long can cause the entire column to be delayed. If he halts because a few shots are fired at his men, and conducts a careful reconnaissance before attacking (instead of pushing right in on the enemy, forcing him to fall back quickly, if a weak detachment; or, to disclose his strength, if strong), the entire column, six miles long, is halted, the march interrupted, valuable time lost, and what is more important, the men irritated and tired out.

(b) The leader of the point must understand that as the principal duty of an advance guard is to secure the safe and uninterrupted march of the main body, he is the first man to discharge this duty. If, for example, his squad receives a volley of shots from some point to the front, he cannot take the time and precautions the commander of a large body would take to reconnoiter the enemy's position, determine something about his strength, etc., before risking an attack. If he did he would not be securing the uninterrupted march of the main body. He has to deploy instantly and press the enemy hard until the hostile opposition disappears or the advance party comes up and its commander takes charge. The point will lose men in this way, but it is necessary, for otherwise one small combat patrol could delay the march time after time.

(c) The same problem must be met in much the same manner by the leader of the advance party. In this case there is more time to think, as the point, being in advance, will have begun the fight before the advance party arrives; but the leader of the advance party must use his men freely and quickly to force the enemy to "show his hand," thus preventing small harassing or combat detachments from delaying the march.

(d) As the subdivisions of the advance guard become larger their leaders act with increasing caution, for as soon as it develops that the enemy in front is really present in some strength, then a halt becomes obligatory and a careful reconnaissance necessary.

(e) The leader of every subdivision must always start a reconnaissance the instant the enemy develops. He may, as in the case of the point, only send one man around to discover the enemy's strength; or, if the leader of the main body of the support, he may send an entire squad. In almost every case the instant he has given his orders for deploying and firing at or rushing the enemy, he sends out his man or men to work around to a position permitting a view of the hostile force. Every noncommissioned officer should impress this on his memory so that he will not forget it in the excitement of a sudden engagement.

(f) No attempt should be made to subdivide the advance guard of a small force into all the elements previously described. For example, the advance guard of a squad is simply a point of one or two men; the advance guard of a company is usually no more than a squad acting as a point, the squad actually having several men from 100 to 150 yards in advance, who really constitute a point for the squad; the advance guard of a battalion would usually consist of a company or less distributed as an advance party proper and a point. The advance guard of a regiment would have no reserve—if, for example, a battalion were used as the advance guard of a regiment, there would be only a support which would be distributed about as follows: A support proper of about three companies and an advance party (point included) of about one company.

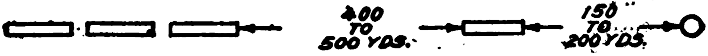


Fig. 184

536. **Reserve.** An advance guard large enough to have a reserve would be distributed as follows:

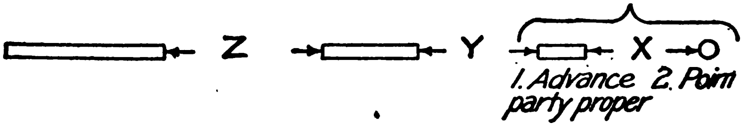


Fig. 185

The distance Z would be greater than Y and Y would be greater than X. For example, a regiment acting as the advance guard of a brigade would, under ordinary conditions, be distributed about as follows:

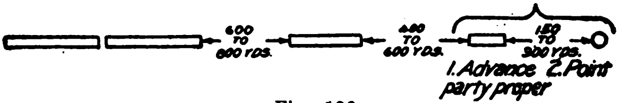


Fig. 186

As only large commands have a reserve, which would always be commanded by an officer, noncommissioned officers need not give this much consideration, but it must be understood that while this fourth subdivision of the advance guard is the only one officially termed reserve, the last subdivision of any advance guard actually is a reserve, no matter what its official designation.

The advance guard of a cavalry command adopts formations similar to those described above, except that the distances are increased because of the rapidity with which the command can close up or deploy. An advance party with a few patrols is usually enough for a squadron, and precedes it from 600 to 1,000 yards.

537. **Reconnaissance.** In reconnaissance the patrols are, as a rule, small (from two to six men).

The flanking patrols, whether of the advance cavalry or of the advance party, are sent out to examine the country wherever the enemy might be concealed. If the nature of the ground permits, these patrols march across country or along roads and trails parallel to the march of the column. For cavalry patrols this is often possible; but with infantry patrols and even with those that are mounted, reconnaissance is best done by sending the patrols to high places along the line of march to overlook the country and examine the danger points. These patrols signal the results of their observations and, unless they have other instructions, join the columns by the nearest routes, other patrols being sent out as the march proceeds and as the nature of the country requires.

Deserters, suspicious characters and bearers of flags of truce (the latter blindfolded), are taken to the advance guard commander.

538. **Advance Guard Order.** On receipt of the order for a march designating the troops for the advance guard, the commander of the latter makes his estimate of the situation; that is, he looks at the map or makes inquiries to determine what sort of a country he must march through and the nature of the roads; he considers what the chances are of encountering the enemy, etc., and then how he should best arrange his advance guard to meet these conditions, and what time the different elements of his advance guard must start in order to take their proper place in the column. He then issues his order at the proper time—the evening before if possible and he deems it best, or the morning of the march.

The order for a large advance guard would ordinarily be written; for a small command it would almost invariably be verbal, except that the commander or leader of each element should always make written notes of the principal points, such as the road to be followed, time to start, distances, etc.

LESSON 24

FLANK GUARDS

539. The flanks of a column are ordinarily protected by the advance guard, which sends out patrols to carefully examine the country on both sides of the line of march. In some cases, however, the direction of march of the column is such that there is a great danger of the enemy's striking it in flank and some special provision is necessary to furnish additional security on the threatened flank. This is done by having a detachment, called a flank guard, march off the exposed flank. The flank guard usually follows a road, parallel to the one on which the column is marching and at least 1,000 yards (effective rifle range) beyond it. If hostile artillery is feared this distance in much greater.

The flank guard regulates its march so as to continue abreast of the advance guard of the main column. It takes a formation similar to an advance guard, does most of its patrolling to the front and on the exposed flank, and keeps in constant touch with the main column by means of mounted or dismounted messengers.

In case the enemy is encountered the flank guard drives him off if practicable or takes up a defensive position, protecting the march of the main column, and preventing the enemy from disturbing the latter's march.

REAR GUARD

540. **Definition and Duties.** A rear guard is a detachment of a marching column following in rear to protect the main column from being surprised and to prevent the march from being delayed or interrupted.

When the main column is marching toward the enemy the rear guard is very small and its duties relatively unimportant. It is principally occupied in gathering up stragglers.

When the main column is marching away from the enemy (retreating) the rear guard is all important. It covers the retreat of the main body, preventing the enemy from harassing or delaying its march.

541. **Strength.** The strength of a rear guard is slightly greater than that of an advance guard, as it cannot expect, like the latter, to be reinforced in case it is attacked, as the main column is marching away from it and avoiding a fight.

542. **Form of Order.** The rear guard commander, on the receipt of the retreat order, issues a rear guard order, according to the form given in the Field Service Regulations.

The distance of a rear guard from the main body and its formation are similar to those of an advance guard. The elements corresponding to the advance cavalry, the point, and the advance party of an advance guard are termed the rear cavalry, rear point and rear party, respectively. The support and reserve retain the same designations.

A rear guard formed during an engagement to cover the withdrawal or retreat of the main body, may first be compelled to take up a defensive position behind which the main body forms up and moves off. It may be forced to withdraw from this position by successive skirmish lines, gradually forming up in column on the road as it clears itself from fighting contact with the enemy.

The rate of march of the rear guard depends upon that of the main body. The main body may be much disorganized and fatigued, necessitating long halts and a slow marching rate.

543. **Action of the Rear Guard.** The withdrawal of defeated troops is delayed, if possible, until night. If it becomes necessary to begin a retreat while an engagement is in progress, the rear guard is organized and takes up a defensive position generally behind the fighting line; the latter then falls back and assembles under cover of the rear guard.

The rear cavalry gives away before the enemy's pursuit only when absolutely necessary, maintains communication with and sends information to the rear guard commander, and pays special attention to the weak points in the retreat, namely the flanks. It makes use of every kind of action of which it is capable, according to the situation, and unless greatly outnumbered by hostile cavalry, it causes considerable delay to the enemy.

When the enemy is conducting an energetic pursuit the rear guard effects its withdrawal by taking up a succession of defensive positions (that is, where the nature of the ground enables the rear guard to defend itself well) and compelling the enemy to attack or turn them. (It should be understood that these successive defensive positions must, in the case of a large force, be from two to four miles apart and in the case of a small force at least one-half mile apart—not a few hundred yards as is frequently attempted in peace maneuvers.)

When the enemy's dispositions for attack are nearly completed, the rear guard begins to fall back, the cavalry on the flanks being usually the last to leave. The commander designates a part of the rear guard to cover the withdrawal of the remainder; the latter then falls back to a new position in rear, and in turn covers the withdrawal of the troops in front. These operations compel the enemy continually to deploy or make turning movements, and constantly retard his advance.

The pursuit may be further delayed by obstacles placed in the enemy's path; bridges are burned or blown up; boats removed or destroyed; fords and roads obstructed; tracks torn up; telegraph lines cut, and houses, villages, woods, and fields fired. Demolitions and obstructions are prepared by engineers, assisted, if necessary, by other troops detailed from the reserve, and are completed by the mounted engineers of the rear party at the last moment.

The instructions of the supreme commander govern in the demolition of important structures.

OUTPOSTS

544. **Definition and Duties.** Outposts are detachments thrown out to the front and flanks of a force that is in camp or bivouac, to protect the main body from being surprised and to insure its undisturbed rest. In fact, an outpost is merely a stationary advance guard. Its duties, in

general, are to *observe* and *resist*—to observe the enemy, and to resist him in case of attack. Specifically its duties are:

(a) To observe toward the front and flanks by means of stationary sentinels and patrols, in order to locate the enemy's whereabouts and learn promptly of his movements, thus making it impossible for him to surprise us.

(b) To prevent the main body from being observed or disturbed.

(c) In case of attack, to check the enemy long enough to enable the main body to prepare for action and make the necessary dispositions.

545. **Size.** The size of the outpost will depend upon many circumstances, such as the size of the whole command, the nearness of the enemy, the nature of the ground, etc. A suitable strength for an outpost may vary from a very small fraction to one-third of the whole force. However, in practice it seldom exceeds one-sixth of the whole force—as a rule, if it be greater, the efficiency of the troops will be impaired. For a single company in bivouac a few sentinels and patrols will suffice; for a large command, a more elaborate outpost system must be provided. The most economical form of outpost is furnished by keeping close contact with the enemy by means of outpost patrols, in conjunction with resisting detachments on the avenues of approach.

Troops at a halt are supposed to be resting, night or day, and the fewer on outpost the more troops will there be resting, and thus husbanding their strength for approaching marches and encounters with the enemy. Outpost duty is about the most exhausting and fatiguing work a soldier performs. It is, therefore, evident that not a man or horse more than is absolutely necessary should be employed, and that the commander should use careful judgment in determining the strength of the outpost, and the chiefs of the various outpost subdivisions should be equally careful in disposing their men so as to permit the greatest possible number to rest and sleep undisturbed, *but at the same time always considering the safety of the main body as the chief duty.*

546. **Composition.** The composition of the outpost will, as a rule, depend upon the size and composition of the command, but a mixed outpost is composed principally of infantry, which is charged with the duty of local observation, especially at night, and with resisting the enemy, in case of attack, long enough for the main body to prepare for action.

The cavalry is charged with the duty of reconnaissance, and is very useful in open country during the day.

Artillery is useful to outposts when its fire can sweep defiles or large open spaces and when it commands positions that might be occupied by hostile artillery.

Machine guns are useful to command approaches and check sudden advances of the enemy.

Engineers are attached to an outpost to assist in constructing entrenchments, clearing the field of fire, opening communication laterally and to the rear. The outpost should be composed of complete organizations. For example, if the outpost is to consist of one company, do not have some of the platoons from one company and the others from another, and if it is to consist of one battalion, do not have some of the companies from one battalion and others from another, etc.

FORMATION OF OUTPOSTS

547. Subdivisions. As in the case of an advance guard, the outpost of a large force is divided into elements or parts, that gradually increase in size from front to rear. These, in order from the main body, are the reserve, the line of supports, the line of outguards, and the advance cavalry, and their formation, as shown by the drawing on the preceding page, may be likened to an open hand, with the fingers apart and extended, the wrist representing the main body, the knuckles the line of supports, the first joints the line of outguards, the second joints the line of sentinels and the finger tips the advance cavalry.

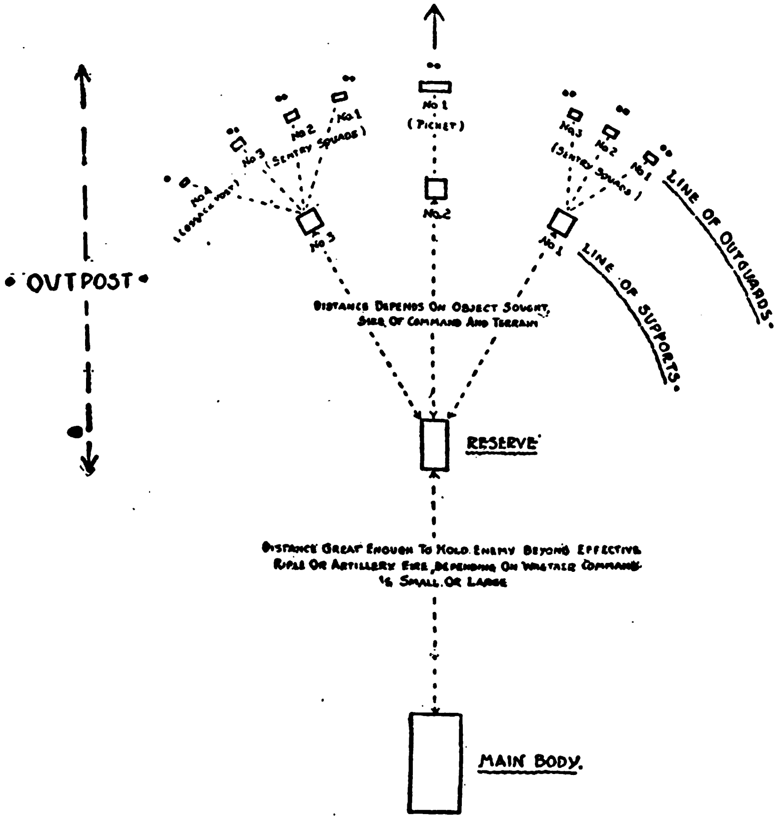

No 1
(Picket)
No 2
No 1
No 2
No 3
(Sentry Squads)
No 4
(Cossack Post)
No 3
No 3
No 2
No 1
(Sentry Squads)
No 1
Line of Outguards.
Line of Supports.
OUTPOST
Distance Depends On Object Sought, Size Of Command And Terrain
Reserve
Distance Great Enough To Hold Enemy Beyond Effective Rifle Or Artillery Fire, Depending On Whether Command Is Small Or Large
Main Body.

Fig. 187

In case of attack each part is charged with holding the enemy in check until the larger element, next in rear, has time to deploy and prepare for action.

548. Distances Between the Subdivisions. The distances separating the main body, the line of supports, the line of outguards, the line of sentries and the advance cavalry, will depend upon circumstances. There can be no uniformity in the distance between supports and reserves, nor between outguards and supports, even in the same outpost. The avenues of approach and the important features of the ground will largely control the exact positions of the different parts of the outposts. The basic principle upon which the distances are based, is: *The distance between any two parts of the outpost must be great enough to give the one in rear time to deploy and prepare for action in case of attack, and the distance of the whole outpost from the main body must, in the case of small commands, be sufficiently great to hold the enemy beyond effective rifle range until the main body can deploy, and, in case of large commands, it must be sufficiently great to hold the enemy beyond effective artillery range until the main body can deploy.*

It is, therefore evident that the distances will be materially affected not only by the size of the main body, but also by the nature of the cover afforded by the ground.

The following is given merely as a very general guide, subject to many changes:

		Distance to next element in rear.
Advance cavalry		2 to 6 miles
(Generally two or more) Supports	Sentinels (furnished by outguard)	20 to 40 yds.
	Outguards (furnished by support)	200 to 500 yds.
	Support proper furnishes majority of patrols	400 to 800 yds.
Reserve (usually omitted in small commands)		½ to 2 miles

549. Advance Cavalry. The advance cavalry is that part of the outpost sent out in front of all foot troops. It generally operates two to six miles beyond the outpost infantry, reconnoitering far to the front and flanks in order to guard the camp against surprise by artillery fire and to give early information of the enemy's movements.

After dusk the bulk of the cavalry usually withdraws to a camp in rear of the outpost reserve, where it can rest securely after the day's hard work and the horses can be fresh for the next day. Several mounted patrols are usually left for the night at junctions or forks on the principal roads to the front, from one to four miles beyond the infantry line of observation.

550. Supports. The *supports* constitute a line of supporting and *resisting* detachments, varying in size from a half a company to a battalion. In outposts consisting of a battalion or more the supports usually comprise about one-half of the infantry. Supports are numbered numerically consecutively from right to left and are placed at the more important points on the outpost line, on or near the line on which resistance is to be made in case of attack.

As a rule, roads exercise the greatest influence on the location of supports, and a support will generally be placed on or near a road.

Each support has assigned to it a definite, clearly-defined section of front that it is to cover, and the support should be located as centrally as possible thereto.

551. **Outguards.** The outguards constitute the line of small detachments farthest to the front and nearest to the enemy, and their duty is to maintain uninterrupted observation of the ground in front and on the flanks; to report promptly hostile movements and other information relating to the enemy; to prevent unauthorized persons from crossing the line of observation; to drive off small parties of the enemy, and to make temporary resistance to larger bodies. For convenience outguards are classified as pickets, sentry squads and cossack posts. They are numbered consecutively from right to left in each support.

552. *A picket* is a group consisting of two or more squads, ordinarily not exceeding half a company, posted in the line of outguards to cover a given sector. It furnishes patrols and one or more sentinels, double sentinels, sentry, squads, or cossack posts for observation.

Pickets are placed at the more important points in the line of outguards, such as road forks. The strength of each depends upon the number of small groups required to observe properly its sector.

533. *A sentry squad* is a squad posted in observation at an indicated point. It posts a double sentinel in observation, the remaining men resting near by and furnishing the reliefs of sentinels. In some cases it may be required to furnish a patrol.

554. *A cossack post* consists of four men. It is an observation group similar to a sentry squad, but employs a single sentinel.

At night, it will sometimes be advisable to place some of the outguards or their sentinels in a position different from that which they occupy in the daytime. In such case the ground should be carefully studied before dark and the change made at dusk. However, a change in the position of the outguard will be exceptional.

555. *Sentinels* are generally used singly in daytime, but at night double sentinels will be required in most cases. Sentinels furnished by cossack posts or sentry squads are kept near their group. Those furnished by pickets may be as far as 100 yards away.

Every sentinel should be able to communicate readily with the body to which he belongs.

Sentinel posts are numbered consecutively from right to left in each outguard. Sentry squads and cossack posts furnished by pickets are counted as sentinel posts.

If practicable, troops on outpost duty are concealed and all movements made so as to avoid observation by the enemy; sentinels are posted so as to have a clear view to the front and, if practicable (though it is rarely possible), so as to be able, by day, to see the sentinels of the adjoining outguards. Double sentinels are posted near enough to each other to be able to communicate easily in ordinary voice.

Sentinels are generally on duty two hours out of six. For every sentinel and for every patrol there should be at least three reliefs; therefore, one-third the strength of the outguards gives the greatest number of men that should be on duty as sentinels and patrols at one time.

Skillful selection of the posts of sentinels increases their field of observation. High points, under cover, are advantageous by night as well as by day; they increase the range of vision and afford greater facilities for seeing lights and hearing noises. Observers with good field glasses may be placed on high buildings, on church steeples or in high trees.

Glittering objects on uniform or equipment should be concealed. It is seldom necessary to fix bayonets, except at night, in dense fog, or in very close country.

Reliefs, visiting patrols, and inspecting officers, approach sentinels from the rear remaining under cover if possible.

556. **Reserve.** The reserve forms a general support for the line of resistance. It is, therefore, centrally located near the junction of roads coming from the direction of the enemy, and in concealment if practicable.

Of the troops detailed for outpost duty, about one-half of the infantry, generally all of the artillery, and the cavalry not otherwise employed, are assigned to the reserve. If the post consists of less than two companies the reserve may be omitted altogether.

The arms are stacked and the equipments (except cartridge belts) may be removed. Roads communicating with the supports are opened.

When necessary, the outpost order states what is to be done in case of attack, designates places of assembly and provides for interior guards. Interior guards are posted in the camp of the reserve or main body to maintain order, and furnish additional security. Additional instructions may be given for messing, feeding, watering, etc. In the vicinity of the enemy or at night a portion of the infantry may be required to remain under arms, the cavalry to hold their horses (cinches loosened), and the artillery to remain in harness, or take up a combat position.

In case of alarm, the reserve prepares for action without delay, and word is sent to the main body. In combat, the reserve reinforces the line of resistance, and if unable to check the enemy until the arrival of the main body, delays him as much as possible.

The distance of the reserve from the line of resistance varies, but is generally about half a mile; in outposts of four companies or less this distance may be as small as 400 yards.

557. **Patrols.** Instead of using outguards along the entire front of observation, part of this front may be covered by patrols only. These should be used to cover such sections of the front as can be crossed by the enemy only with difficulty and over which he is not likely to attempt a crossing after dark.

In daylight much of the local patrolling may be dispensed with if the country can be seen from the posts of the sentinels. However, patrols should frequently be pushed well to the front unless the ground in that direction is exceptionally open.

Patrols must be used to keep up connection between the parts of the outpost except when, during daylight, certain fractions or groups are mutually visible. After dark this connection must be maintained throughout the outpost except where the larger subdivisions are provided with wire communication.

The following patrols are usually sent out from the main bodies of the supports:

(a) Patrols of from three men to a squad are sent along the roads and trails in the direction of the enemy, for a distance of from one to five miles, depending on how close the enemy is supposed to be whether or not there is any advance cavalry out, and how long the outpost has been in position. The extreme right and left supports send patrols well out on the roads to the flanks. These patrols generally operate continuously as soon as one returns from the front, or possibly even before it returns, another goes out in the same general direction to cover the same country. Frequently a patrol is sent out along a road to the front for two or three miles with orders to remain out until some stated time—for example, 4 P. M., dusk or dawn. It sends in important information, and remains out near the extremity of its route, keeping a close watch on the surrounding country.

An effort should always be made to secure and maintain contact with the enemy, if within a reasonable distance, in order that his movements or lack of movement may be constantly watched and reported on. The usual tendency is towards a failure to send these patrols far enough to the front and for the patrol leader to overestimate the distance he has traveled. A mile through strange country with the ever-present possibility of encountering the enemy seems three miles to the novice.

At night the patrols generally confine their movements to the roads, usually remaining quietly on the alert near the most advanced point of their route to the front.

The majority of such patrols are sent out to secure information of the enemy—reconnoitering patrols—and they avoid fighting and hostile patrols, endeavoring to get in touch with the enemy's main force. Other patrols are sometimes sent out to prevent hostile detachments from approaching the outposts; they endeavor to locate the hostile patrols, drive them back, preventing them from gaining any vantage point from which they can observe the outpost line. These are called combat patrols and have an entirely different mission from reconnoitering patrols.

(b) Patrols of from two men to a squad, usually two men, are sent from the support around the line of its outguards, connecting with the outguards of the adjacent supports, if practicable. These are "visiting patrols," and they serve to keep the outguards of a support in touch with it and with each other; to keep the commander of a support in touch with his outguards and the adjacent supports; and to reconnoiter the ground between the outguards. Since a hostile force of any size is practically forced to keep to the roads, there are rarely ever any supports and very few outguards posted off the roads, the intervals being covered by patrols, as just described.

When going out a patrol will always inform the nearest sentinel of the direction it will take and its probable route and hour of return.

558. Detail for Patrols. Since for every patrol of four men, twelve are required (3 reliefs of 4 men each), the importance of sending out just enough men and not one more than is actually needed, can readily be understood. As fast as one visiting patrol completes its round, another should usually be sent out, possibly going the rounds by a slightly different route or in the reverse direction. The same generally applies to the reconnoitering and combat patrols, though frequently they are sent out for the entire day, afternoon or night, and no 2d and 3d relief is required. Three reliefs are required for the sentinel or sentinels at the post of the supports, so care should be taken to establish but one post, if it can do all that is required. It should not be considered that every man in the support should be on duty or on a relief for an outguard, a patrol or sentinel post. There should be as many men as possible in the main body of a support (this term is used to distinguish this body from the support proper, which includes the outguards and their sentinels) who only have no duty other than being instantly available in case of attack.

559. **Flags of Truce.** Upon the approach of a flag of truce, the sentry will at once notify the commander of the outguard, who will in turn send word to the commander of the outpost and ask for instructions. One or more men will advance to the front and halt the party at such distance as to prevent any of them from overlooking the outposts. As soon as halted, the party will be ordered to face in the opposite direction. If permission is given to pass the party through the outpost line, they will be blindfolded and led under escort to the commander of the outguard. No conversation, except by permission of the outpost commander, is to be allowed on any subject, under any pretext, with the persons bearing the flag of truce.

560. **Entrenchments and Obstacles.** The positions held by the subdivisions of an outpost should generally be strengthened by the construction of entrenchments and obstacles, but conditions may render this unnecessary.

561. **Concealment.** Troops on outpost must keep concealed as much as is consistent with the proper performance of their duties; especially should they avoid the sky line.

562. **Detached Posts.** In addition to ordinary outguards, the outpost commander may detail from the reserve one or more detached posts to cover roads or areas not in general line assigned to the supports.

In like manner the commander of the whole force may order detached posts to be sent from the main body to cover important roads or localities not included in the outpost line.

Detached posts may be sent out to hold points which are of importance to the outpost cavalry, such as a ford or a junction of roads; or to occupy positions especially favorable for observation, but too far to the front to be included in the line of observation; or to protect flanks of the outpost position. Such posts are generally established by the outpost commander, but a support commander might find it necessary to establish a post practically detached from the rest of his command. They usually vary in strength from a squad to a platoon. The number and strength of detached posts are reduced to the absolute needs of the situation.

563. **Examining Posts.** An examining post is a small detachment, under the command of an officer or a noncommissioned officer, stationed at some convenient point to examine strangers and to receive bearers of flags of truce brought in by the outguards or patrols.

Though the employment of examining posts is not general in field operations, there are many occasions when their use is important; for example: When the outguards do not speak the language of the country or of the enemy; when preparations are being made for a movement and strict scrutiny at the outguards is ordered; at sieges, whether in attack or defense. When such posts are used, strangers approaching the line of observation are passed along the line to an examining post.

No one except the commander is allowed to speak to persons brought to an examining post. Prisoners and deserters are at once sent under guard to the rear.

564. Cavalry Outpost. Independent cavalry covering a command or on special missions, and occasionally the advance cavalry of a mixed command, bivouac when night overtakes them, and in such cases furnish their own outposts. The outposts are established, in the main, in accordance with the foregoing principles, care being taken to confine outpost work to the lowest limits consistent with safety. No precaution, however, should be omitted, as the cavalry is generally in close proximity to the enemy, and often in territory where the inhabitants are hostile.

The line of resistance is occupied by the supports, the latter sending out the necessary outguards and patrols. Each outguard furnishes its own vedettes (mounted sentinels), or sentinels. Due to the mobility of cavalry, the distances are generally greater than in an outpost for a mixed command. An outguard of four troopers is convenient for the day time, but should be doubled at night, and at important points made even stronger. The sentinels are generally dismounted, their horses being left with those of the outguards.

Mounted cavalry at night can offer little resistance; the supports and outguards are therefore generally dismounted, the horses being under cover in rear, and the positions are strengthened by intrenchments and obstacles. By holding villages, bridges, defiles, etc., with dismounted rifle fire, cavalry can greatly delay a superior force.

There should always be easy communication along the line of resistance to enable the cavalry to concentrate at a threatened point.

A support of one squadron covers with its outposts a section rarely longer than two miles.

As such a line is of necessity weak, the principal reliance is placed on distant patrolling. If threatened by infantry, timely information enables the threatened point to be reinforced, or the cavalry to withdraw to a place of safety. If there is danger from hostile cavalry, the roads in front are blocked at suitable points, such as bridges, fords, defiles, etc., by a succession of obstacles and are defended by a few dismounted men. When compelled to fall back three men mount and ride rapidly to the next obstacle in rear and there take up a new position. As the march of cavalry at night is, as a rule, confined to roads, such tactics seriously delay its advance.

In accordance with the situation and the orders they have received, the support commanders arrange for feeding, watering, cooking, resting and patroling. During the night the horses of the outguards remain saddled and bridled. During the day time cinches may be loosened, one-third of the horses at a time. Feeding and watering are done by reliefs. Horses being fed are removed a short distance from the others.

Independent cavalry generally remains in outpost position for the night only, its advance being resumed on the following day; if stopped by the enemy, it is drawn off to the flanks upon the approach of its own infantry.

ESTABLISHING THE OUTPOST

565. The outpost is posted as quickly as possible, so that the troops can the sooner obtain rest. Until the leading outpost troops are able to

assume their duties, temporary protection, known as the *march outpost*, is furnished by the nearest available troops.

Upon receipt of the *halt order* from the commander of the main column, the outpost commander issues the *outpost order* with the least practicable delay.

The *halt order*, besides giving the necessary information and assigning camp sites to the parts of the command, details the troops to constitute the outpost, assigns a commander therefor, designates the general line to be occupied, and, when practicable, points out the position to be held in case of attack.

The *outpost order* gives such available information of the situation as is necessary to the complete and proper guidance of subordinates; designates the troops to constitute the supports; assigns their location and the sector each is to cover; provides for the necessary detached posts; indicates any special reconnaissance that is to be made; orders the location and disposition of the reserve; disposes of the train if the same is ordered to join the outpost; and informs subordinates where information will be sent. In large commands it may often be necessary to give the order from the map, but usually the outpost commander will have to make some preliminary reconnaissance, unless he has an accurate and detailed map.

Generally it is preferable for the outpost commander to give verbal orders to his support commanders from some locality which overlooks the terrain. The time and locality should be so selected that the support commanders may join their comamnds and conduct them to their positions without causing unnecessary delay to their troops. The reserve commander should, if possible, receive his orders at the same time as the support commanders. Subordinates to whom he gives orders separately should be informed of the location of other parts of the outpost.

566. After issuing the initial orders, the outpost commander inspects the outpost, orders the necessary changes or additions, and sends his superior a report of his dispositions.

The reserve is marched to its post by its commander, who then sends out such detachments as have been ordered and places the rest in camp or bivouac, over which at least one sentinel should be posted. Connection must be maintained with the main body, the supports, and nearby detached posts.

The supports march to their posts, using the necessary covering detachments when in advance of the march outpost. A support commander's order should fully explain the situation to subordinates, or to the entire command, if it be small. It should detail the troops for the different outguards and, when necessary define the sector each is to cover. It should provide the necessary sentinels at the post of the support, the patrols to be sent therefrom, and should arrange for the necessary intrenching.

In posting his command the support commander must seek to cover his sector (the front that he is to look after) in such manner that the enemy can not reach, in dangerous numbers and unobserved, the position of the support or pass by it within the sector intrusted to the support. On the other hand, he must economize men on observation and patrol duty, for these duties are unusually fatiguing. He must practice the greatest economy of men consistent with the requirements of practical security.

As soon as the posting of the support is completed, its commander carefully inspects the dispositions and corrects defects, if any, and reports the disposition of his support, including the patrolling ordered, to the outpost commander. This report is preferably made by means of a sketch.

By day the outpost will stack arms and the articles of equipment, except the cartridge belt and canteen, will be placed by the arms. At night the men will invariably sleep with their arms and equipment near them.

In addition to the sentinel posted over the support, a part of the support, say one-third or one-fourth, should always be awake at night.

Each outguard is marched by its commander to its assigned station, and especially in the case of a picket, is covered by the necessary patrolling to prevent surprise.

Having reached the position, the commander explains the situation to his men and establishes reliefs for each sentinel, and, if possible, for each patrol to be furnished. Besides these sentinels and patrols, a picket must have a sentinel at its post.

The commander then posts the sentinels and points out to them the principal features, such as towns, roads, and streams, and gives their names. He gives the direction and location of the enemy, if known, and of adjoining parts of the outpost.

He gives to patrols the same information and the necessary orders as to their routes and the frequency with which the same shall be covered. Each patrol should go over its route once before dark.

Each picket should maintain connection by patrols with the outguards on its right and left.

567. **Intercommunication.** It is most important that communication should be maintained at all times between all parts of the outpost, and between the outpost and the main body. This may be done by patrols, messengers, wire or signal.

The commander of the outpost is responsible that proper communication be maintained with the main body, and the support commanders keep up communication with the outguards, with the adjoining supports and with the reserve. The commander of a detached post will maintain communication with the nearest outguard.

568. **Changes for the Night.** In civilized warfare, it is seldom necessary to draw the outpost closer to the main body at night in order to diminish the front; nor is it necessary to strengthen the line of observation, as the enemy's advance in force must be confined to the roads. The latter are therefore strongly occupied, the intervening ground being diligently patrolled.

In very open country or in war with savage or semi-civilized people familiar with the terrain, special precautions are necessary.

569. **Relieving the Outpost.** Ordinarily outposts are not kept on duty longer than twenty-four hours. In temporary camps or bivouac they are generally relieved every morning. After a day's advance the outpost for the night is usually relieved the following morning when the support of the new advance guard passes the line of resistance. In retreat

the outpost for the night usually forms the rear guard for the following day, and is relieved when it passes the line of observation of the new outpost.

Outguards that have become familiar with the country during the day time should remain on duty that night. Sentinels are renewed once in two hours, or oftener, depending on the weather. The work of patrols is regulated by the support commander.

Commanders of the various fractions of an outpost turn over their instructions and special orders, written and verbal, to their successors, together with the latest information of the enemy, and a description of the important features of the country. When practicable the first patrols sent out by the new outposts are accompanied by members of the old outpost who are familiar with the terrain. When relieved the old outguards return to their supports, the supports to the reserve and the latter to the main body; or, if more convenient, the supports and reserves return to the main body independently, each by the shortest route.

When relieved by an advance guard, the outpost troops ordinarily join their units as the column passes.

Evening and shortly before dawn are hours of special danger. The enemy may attack late in the day in order to establish himself on captured ground by intrenching during the night; or he may send forward troops under cover of darkness in order to make a strong attack at early dawn. Special precaution is therefore taken at those hours by holding the outpost in readiness, and by sending patrols in advance of the line of observation. If a new outpost is to be established in the morning it should arrive at the outpost position at daybreak, thus doubling the outpost strength at that hour.

LESSON 25

THE COMPANY ON OUTPOST

(Establishing the Outpost)

570. We will now apply some of the general principles of outposts (see Par. 544) to a company taking up its position on the line of outposts.

Let us suppose that our battalion has been detailed for outpost duty.

In order to understand more fully the duties and functions of the company commander, we will first consider what the major does. To begin with, he and the battalion will have been detailed for outpost duty before the march was completed, and he will have been told, amongst other things, what is known of the enemy and also what is known of other bodies of our own troops, where the main body will halt, the general position to be occupied by the outpost, and what the commander intends doing in case of attack.

The major verbally designates, say, two companies, as the reserve, and the other two companies, including our own, as the support. He places the senior officer of the reserve companies in command of the reserve and tells him where he is to go, and he indicates the general line the outpost is to occupy and assigns the amount of front each of the other companies is to cover. The limits of the sector so assigned should be marked by some distinctive features, such as trees, buildings, woods, streams, etc., as it is important that each company should know the exact limits of its frontage. He tells the company commanders what he knows of the enemy and of our own troops so far as they affect the outposts, he indicates the line of resistance and how much resistance is to be afforded in case of attack, states whether intrenchments and obstacles are to be constructed, gives instructions about lighting fires and cooking, and states where he can be found.

Upon receiving his orders from the major, the company commander, *with a proper covering detachment,* moves to the locality allotted him and as he arrives upon the ground he is to occupy, he sends out, as temporary security, patrols or skirmishers, or both, a short distance in front of the general position the outguard will occupy, holding the rest of the company back under cover. If practicable, the company commander should precede the company and make a rapid examination of the ground. He then sends out *observation groups,* varying in size from four men to a platoon, generally a squad, to watch the country in the direction of the enemy. These groups constitute the *outguards,* and are just sufficient in number to cover the front of the supports, and to connect where necessary with the outguards of adjoining supports.

The company commander next selects a defensive position on the general line of resistance, from which not only can he command the approaches, but where he can also give assistance to the adjoining supports; he then gives instructions in regard to the intrenchments and obstacles, after which he makes a more careful reconnaissance of the section assigned him; corrects the position of the outguards, if necessary; gives them instructions as to their duties in case of attack or when strangers approach their posts; tells them the number (if any) of their post, the number of the outguard and support and the numbers of the adjoining outguards and supports; points out lines of retreat in case they are compelled to fall back to the support, cautioning the men not to mask the fire of the support; he tells them the names of all villages, rivers, etc., in view, and the places to which the wagon roads and the railroads lead; selects, if necessary, places for additional posts to be occupied at night and during fog; sees that suitable connections are made between him and the adjoining outguards, and between his support and the adjoining supports; and questions subordinate commanders to test their grasp of the situation and knowledge of their duties, and on returning to the support he sends a report with a *sketch* to the outpost commander, showing the dispositions made.

After the line of observation has been established, the support stacks arms and the men are permitted to remove their equipments, except cartridge belts. One or more sentinels are posted over these supports, and they guard the property and watch for signals from the outguards. Fires are concealed as much as possible and the messing is done by reliefs. Mounted messengers ordinarily do not unsaddle; they rest, water, and feed as directed.

After the major has received reports from both company commanders, he will himself visit the outguards and supports and make such changes as he may deem necessary, immediately after which he will submit to the commander of the troops a written report, accompanied by a combined sketch showing the positions of the different parts of the outpost. The major might begin his inspection of the line of outguards before receiving the reports of the company commanders.

In training and instructing the company in outpost work, it is always best to send out a few patrols and scouts an hour or two in advance, with definite instructions as to what they are to do, and have them operate against the company as hostile scouts and patrols. If the rest of the company know that patrols and scouts are operating in their front, and will try to work their way through the outpost line, they will naturally take a keener interest in their work. Exercises of this kind create a feeling of rivalry between the scouts and patrols, who, on the one hand, are trying to work their way through the line of outposts, and the outguards and patrols, who, on the other hand, are trying to prevent them from so doing. It makes the work much more *human.*

THE COMPANY IN SCOUTING AND PATROLLING

571. The general principles of patrolling are explained in Par. 468, so we need not repeat them here.

Many of the principles of scouting are, in reality, nothing but the fundamentals of patrolling, and the main function of scouting, *recon-*

noitering, is also the function of a certain class of patrols. So, we see that scouting and patrolling are inseparably connected, and the importance of training the members of the company in the principles of scouting is, therefore, evident.

572. **Requisites of a good Scout.** A man, to make a good scout, should possess the following qualifications:—

Have good eyesight and hearing;

Be active, intelligent and resourceful;

Be confident and plucky;

Be healthy and strong;

Be able to swim, signal, read a map, make a rough sketch, and, of course, read and write.

573. **Eyesight and Hearing.** To be able to use the eye and the ear quickly and accurately is one of the first principles of successful scouting. Quickness and accuracy of sight and hearing are to a great extent a matter of training and practice. The savage, for instance, almost invariably has quick eyesight and good hearing, simply from continual practice.

Get into the habit of seeing, *observing*, things—your eyesight must never be resting, but must be continually glancing around, in every direction, and *seeing* different objects. As you walk along through the country get into the habit of noticing hoof-prints, wheel-ruts, etc., and observing the trees, houses, streams, animals, men, etc., that you pass.

Practice looking at distant objects and discovering objects in the distance. On seeing distant signs, do not jump at a conclusion as to what they are, but watch and study them carefully first.

Get into the habit of listening for sounds and of distinguishing by what different sounds are made.

574. **Finding your Way in a strange Country.** The principal means of finding one's way in a strange country are by map reading, asking the way, the points of the compass and landmarks.

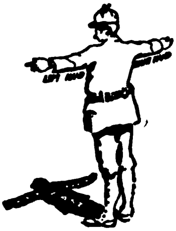
Map Reading. This, of course, presupposes the possession of a map. The subject of map reading is explained in Pars. 433-451.

Asking the Way. In civilized countries one has no trouble in finding his way by asking, provided, of course, he speaks the language. If in a foreign country, learn as soon as you can the equivalent of such expressions as "What is the way to ......?" "Where is ......?" "What is the name of this place?," and a few other phrases of a similar nature. Remember, however that the natives may sometimes deceive you in their answers.

Points of the Compass. A compass is, of course, the best, quickest and simplest way of determining the directions, except in localites where there is much iron, in which case it becomes very unreliable.

For determining the points of the compass by means of the North Star and the face of a watch, see Par. 583½.

The best book on scouting that the author has ever seen, is Baden-Powell's "Aids to Scouting," which was consulted in the preparation of this chapter.



The points of the compass can also be ascertained by facing the sun in the morning and spreading out your arms straight from the body. Before you is east; behind you, west; to your right, south; to your left, north.

The points of the compass can be determined by noting the limbs and bark of trees. The bark on the north side of trees is thicker and rougher than that on the south side, and moss is most generally found near the roots on the north side. The limbs and branches are generally longer on the south side of the trees, while the branches on the north are usually knotty, twisted and drooped. The tops of pine trees dip or trend to the north.

575. **Lost.** In connection with finding your way through strange country, it may be said, should you find you have lost your way, do not lose your head. Keep cool—try not to let your brains get into your feet. By this we mean don't run around and make things worse, and play yourself out. First of all sit down and think; cool off. Then climb a tree, or hill, and endeavor to locate some familiar object you passed, so as to retrace your steps. If it gets dark and you are not in hostile territory, build a good big fire. The chances are you have been missed by your comrades and if they see the fire, they will conclude you are there and will send out for you. Also, if not in hostile territory, distress signals may be given by firing your rifle, but don't waste all your ammunition.

If you find a stream, follow it; it will generally lead somewhere—where civilization exists.

The tendency of people who are lost is to travel in a circle uselessly.

Remember this important rule: *Always notice the direction of the compass when you start out, and what changes of direction you make afterwards.*

576. **Landmarks.** Landmarks or prominent features of any kind are a great assistance in finding one's way in a strange country. In starting out, always notice the hills, conspicuous trees, high buildings, towers, rivers, etc. For example, if starting out on a reconnaissance you see directly to the north of you a mountain, it will act as a guide without your having to refer to your compass or the sun. If you should start from near a church, the steeple will serve as a guide or landmark when you start to make your way back.

When you pass a conspicuous object, like a broken gate, a strangely shaped rock, etc., try to remember it, so that should you desire to return that way, you can do so by following the chain of landmarks. On passing such landmarks always see what they look like from the other side; for, that will be the side from which you will first see them upon the return trip.

The secret of never getting lost is to note carefully the original direction in which you start, and after that to note carefully all landmarks. Get in the habit of doing this in time of peace—it will then become second nature for you to do it in time of war.

It may sometimes be necessary especially in difficult country, such as when travelling through a forest, and over broken mountains and ravines, for you to make your own landmarks for finding your way back by "blazing" (cutting pieces of bark from the trees), breaking small branches off bushes, piling up stones, making a line across a crossroad or path you did not follow, etc.

577. **Concealment and Dodging.** Both in scouting and patrolling it must be remembered not only that it is important you should get information, but it is also fully as important that the enemy should not know you have the information—hence, the necessity of hiding yourself. And remember, too, if you keep yourself hidden, not only will you probably be able to see twice as much of what the enemy is doing, but it may also save you from being captured, wounded, or killed.

Should you find the enemy has seen you, it is often advisable to pretend that you have not seen him, or that you have other men with you by signalling to imaginary comrades.

As far as possible, keep under cover by travelling along hedges, banks, low ground, etc. If moving over open country, make your way as quickly as possible from one clump of trees or bushes to another; or, from rocks, hollows or such other cover as may exist, to other cover. As soon as you reach new cover, look around and examine your surroundings carefully.

Do not have about you anything that glistens, and at night be careful not to wear anything that jingles or rattles. And remember that at night a lighted match can be seen as far as 900 yards and a lighted cigarette nearly 300 yards. In looking through a bush or over the top of a hill, break off a leafy branch and hold it in front of your face.

In selecting a tree; tower or top of a house or other look-out place from which to observe the enemy from concealment, always plan beforehand how you would make your escape, if discovered and pursued. A place with more than one avenue of escape should be selected, so that if cut off in one direction you can escape from the other. For example, should the enemy reach the foot of a tower in which you are, you would be completely cut off, while if he reached a house on whose roof you happened to be, you would have several avenues of escape.

Although trees make excellent look-out places, they must, for the same reasons as towers, be used with caution. In this connection it may be remarked unless one sees foot marks leading to a tree, men are apt not to look up in trees for the enemy—hence, be careful not to leave foot marks. When in a tree, either stand close against the trunk, or lie along a large branch, so that your body will look like a part of the trunk or branch.

In using a hill as a look-out place, do not make the common mistake of showing yourself on the skyline. Reach the top of the hill slowly and gradually by crouching down and crawling, and raise your head above the crest by inches. In leaving, lower your head gradually and crawl away by degrees, as any quick or sudden movement on the sky-line is likely to attract attention. And, remember, just because you don't happen to see the enemy that is no sign that he is not about. At maneuvers and in exercises soldiers continually make the mistake of exposing themselves on the skyline.

At night confine yourself as much as possible to low ground, ditches, etc. This will keep you down in the dark and will enable you, in turn, to see outlined against the higher ground any enemy that may approach you.

At night especially, but also during the day, the enemy will expect you along roads and paths, as it is easier to travel along roads and paths than across country and they also serve as good guides in finding your way. As a rule, it is best to use the road until it brings you near the enemy and then leave it and travel across country. You will thus be able better to avoid the outposts and patrols that will surely be watching the roads.

Practice in time of peace the art of concealing yourself and observing passers-by. Conceal yourself near some frequented road and imagine the people traveling over it are enemies whose numbers you wish to count and whose conversation you wish to overhear. Select a spot where they are not likely to look for you, and which has one or more avenues of escape; choose a position with a background that matches your clothes in color; keep quiet, skin your eyes; stretch your ears.

A mounted scout should always have wire cutters when operating in a country where there are wire fences.

578. **Tracking.** By ''tracking'' we mean following up footmarks. The same as the huntsman tracks his game so should we learn how to track the enemy. One of the first things to learn in tracking is the pace at which the man or horse was travelling when the track was made.

A horse walking makes pairs of footmarks, each hind foot being close to the impression of the forefoot. At a trot the tracks are similar, but the pairs of footmarks are farther apart and deeper, the toe especially being more deeply indented than at the walk. At a canter there are two single footmarks and then a pair. At a gallop the footmarks are single and deeply indented. As a rule, the hind feet are longer and narrower than the forefeet.

In case of a man walking, the whole flat of the foot comes equally on the ground, the footmarks usually about 30 inches apart. If running, the toes are more deeply indented in the ground, and the footmarks are considerably farther apart than when walking. Note the difference between footmarks made by soldier's shoes and civilian's shoes, and those made by men and those made by women and children.

Study the difference between the tracks made by a gun, a carriage, an escort wagon, an automobile, a bicycle, etc., and the direction in which they were going.

In addition to being able to determine the pace of tracks, it is most important that you should be able to tell how old they are. However, ability to do this with any degree of accuracy, requires a vast amount of practice. A great deal depends on the kind and the state of the ground and the weather. For example, if on a dry, windy day you follow a certain track over varying ground, you will find that on light sandy soil, for instance, it will look old in a very short time, because any damp earth that may have been kicked up from under the surface will dry very quickly to the same color as the rest of the surface, and the edge of the footmark will soon be rounded off by the breeze blowing over the dry dust. The same track in damp ground will look much fresher, and in damp clay, in the shade of trees, a track which may be a day old will look quite fresh.

The following are clues to the age of tracks: Spots of rain having fallen on them since they were made, if, of course, you knew when the rain fell; the crossing of other tracks over the original ones; the freshness or coldness of the droppings of horses and other animals (due allowance being made for the effect of the sun, rain, etc.), and, in the case of grass that has been trodden down, the extent to which it has since dried or withered.

Having learned to distinguish the pace and age of tracks, the next thing to do is to learn how to follow them over all kinds of ground. This is a most difficult accomplishment and one that requires a vast amount of practice to attain even fair proficiency.

In tracking where it is difficult to see the track, such as on hard ground, or in the grass, note the direction of the last foot-print that you can see, then look on ahead of you a few yards, say, 20 or 30, in the same direction, and, in grass, you will probably see the blades bent or trodden, and, on ground, you will probably see stones displaced or scratched—or some other small sign which otherwise would not be noticed. These indistinct signs, seen one behind the other give a track that can be followed with comparative ease.

If you should lose the track, try to find it again by placing your handkerchief, hat, or other object on the last footmark you noticed, and then work around it in a wide circle, with a radius of, say, 30, 50, or 100 yards, choosing the most favorable ground, soft ground, if possible. If with a patrol, only one or two men should try to find the onward track; for if everyone starts in to find it, the chances are the track will be obliterated with their footmarks. In trying to find the continuation of a track this way, always place yourself in the enemy's position, look around the country, imagine what you would have done, and then move out in that direction and look for his tracks in soft ground.

PRACTICE

In order to learn the appearance of tracks, get a suitable piece of soft ground, and across this have a man walk and then run, and have a horse walk, trot, canter and gallop. The next day make similar tracks alongside the first ones and then notice the difference between the two. Also, make tracks on ordinary ground, grass, sand, etc., and practice following them up. Finally, practice tracking men sent out for the purpose. The work will probably be very difficult, even disheartening at first, but you will gradually improve, if you persevere.

Above all things, get into the habit of seeing any tracks that may be on the ground. When out walking, when going through exercises at maneuvers, and at other times always notice what tracks are on the ground before you, and study them.

NIGHT OPERATIONS

579. Importance. Because of the long range and great accuracy of modern fire-arms, there has been in recent years a marked increase in the practice of night operations, such operations being of common occurrence not only for massing troops under cover of darkness in favorable positions for further action, but also for actually assaulting positions.

TRAINING OF THE COMPANY

580. Night movements are amongst the most difficult operations of war, and, therefore require the most careful, painstaking and thorough training and instruction of troops in all matters pertaining thereto. The history of night fighting shows that in most cases defeat is due to disorganization through panic. It is said that in daylight the moral is to the physical as three is to one. That being the case, it is hard to say what the ratio is at night, when a general atmosphere of mystery, uncertainty and fear of surprise envelops the operations, and, of necessity affects the nerves of the men. The vital importance, therefore, of accustoming troops as much as we can in peace to the conditions that will obtain in night fighting, cannot be overestimated. The following outline shows the subjects in which individual and collective instruction and training should be given:

INDIVIDUAL TRAINING

581. **General.** The first thing to be done is to accustom the soldier to darkness and to teach him to overcome the nervousness which is natural to the average man in darkness.

The best way to do this is to begin by training him in the use of his powers of vision and hearing under conditions of darkness, which are strange to him. The company should be divided into squads for this instruction.

582. **Vision.** Take several men to ground with which they are familiar. Have them notice the different appearance which objects present at night, when viewed in different degrees of light and shade; the comparative visibility of men under different conditions of dress, background, etc.; the case with which bright objects are seen; the difference between the visibility of men standing on a skyline and those standing on a slope. Post the men in pairs at intervals along a line which the instructors will endeavor to cross without being seen. The instructors should cross from both sides, so as to compel observation in both directions. Have a man (later, several) walk away from the rest of the men and when he is about to disappear from view, halt him, and estimate the distance. Send a man (later, several) outside the field of vision, to advance on the rest of the men. Halt him when he enters the field of vision and estimate the distance. Send a number of men outside the limit of vision and then let them advance on the rest of the men, using cover and seeing how near they can approach unobserved.

583. **Hearing.** Place a number of men a few yards apart and make them guess what a noise is caused by, and its approximate position. The rattle of a meat can, the movement of a patrol, the working of the bolt of a rifle, the throwing down of accoutrements, low talking, etc., may be utilized. Take special pains to impress upon the men the penetrating power of the human voice, and the necessity of preserving absolute silence in night operations. Have blank cartridges fired and teach the men to judge their direction and approximate distance away.

583½. Finding Bearings. Show the men how to determine the points of the compass from the North Star. The Big Dipper constellation looks like this:

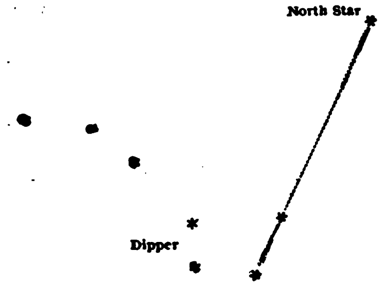


Fig. 188

The North Star is on the prolongation of a line joining the two "pointing" stars, and at above five times the distance between the two stars. At another time have those same men individually locate the North Star. Using this star as a guide, practice the men moving in different directions, by such commands as, "Smith, move southeast." "Jones, move northwest," etc.

To test a man's ability to keep a given direction when moving in the darkness, choose a spot from which no prominent landmarks are visible, advance toward it accompanied by a man, from a distance not less than 200 paces. While advancing the soldier must take his bearings. On arriving at the spot chosen the instructor will turn the soldier around rapidly two or three times and then have him continue to advance in the same direction as before. No prominent landmarks should be visible from the starting point.

584. Moving in the Dark. Form four or five men in line with about one pace interval, the instructor being on one of the flanks. Place some clearly visible mark, such as a lantern, for the instructor to march on. Impress upon the men the importance of lifting their feet up high and bringing them to the ground quietly and firmly, and of keeping in touch with the guide and conforming to his movements without sound or signal. The pace should be slow and frequent halts should be made to test the promptness of the men in halting and advancing together. As the line advances, each man will in turn take his place on the flank and act as guide. The light on which the men are marching should be hidden from view at intervals, in order to test the ability of the men to maintain the original direction. Later on, the number of men in a line may be increased considerably. The rougher the ground, the darker the night and the longer the line, the slower must the pace be and the more frequent the halts. After passing an obstacle men instinctively line up parallel to it, and consequently if the obstacle does not lie at right angles to the line of advance, the direction will be lost; so, be sure to guard against this.

585. Night Fencing. Practice the men in charging in the dark against a white cloth or the dummy figure of a man. In the beginning have the figure in a fixed place, but later have the soldier charge seeking the figure, and not knowing just exactly where it is beforehand.

586. **Night Entrenching.** It is frequently necessary in time of war to dig trenches at night in front of the enemy, and while this work is easy in the moonlight, it is very difficult in the dark. Bear in mind the following points:

1. The tendency is to make the trench too narrow; hence, guard against this.
2. Be careful not to throw the earth too far or too near.
3. Do not strike your neighbor's tools in working.
4. Do not use the pick unless necessary, because it makes considerable noise.
5. Do not scrape the tools together in order to get off the dirt; use a chip of wood or the toe of the shoe.
6. Make as little noise as possible in digging and handling your tools.
7. If discovered by the enemy's searchlights, do not become excited or confused; simply lie down.
8. If attacked by the enemy, do not get rattled and throw your tools away—put them in some fixed place where they can be found again.

587. **Equipment.** At first the men should be taken out without arms, but later on they should be trained to work in full equipment. Teach every man what parts of his equipment are likely to make a noise under special circumstances, such as lying down, rising, crossing obstacles, etc., and instruct him how to guard against it. Bayonets should always be fixed, but in order to avoid accidents the scabbard should be left on them.

From the beginning of the training continually impress upon the men that it is absolutely criminal to fire without orders during a night operation and that the bayonet is the only weapon he can use with advantage to himself and safety to his comrades.

588. **Night Firing.** As a rule men fire too high in the dark. They must, therefore, be cautioned not to raise the rifle above the horizontal, or incline the upper part of the body to the rear. When the firing is stopped be sure to turn on the safety-lock. Experience during the Russo-Japanese War taught the Japanese the kneeling position is the most suitable for horizontal firing. The following method, to be conducted in daytime, may be employed in training the soldier to hold his rifle parallel to the ground while firing in the dark:—Have each soldier, kneeling, close his eyes and bring his rifle to the position of aim, barrel parallel to the ground. With the rifle in this position, let him open his eyes and examine it. Then have this done by squad, by command. When they become proficient in this movement, have them close their eyes and while the eyes are closed, put up a target and have them practice horizontal firing, opening their eyes each time after pulling the trigger and then examining the position of the piece.

COLLECTIVE TRAINING

At first practice squads, then the platoons and later the company in simple movements, such as squads right and left, right and left oblique, etc., gradually leading up to more complicated ones in close and extended order, such as right and left front into line, advancing in platoon and squad columns, charging the enemy, etc. As far as possible the movements should be executed by simple prearranged signals from the unit commands. The signals, which must not be visible to the enemy, may be made with a white handkerchief or a white flag, if the night be not too dark; with an electric flashlight, a dark lantern or luminous disk. The light of the flashlight or lantern must be screened, so it cannot be seen by the enemy. The following signals are suggested:

To advance: Raise vertically the lantern or other object with which the signal is made.

To halt: Lower and raise the object several times.

To lie down: Bring the object down near the ground.

To form squad columns: Move the object several times to the right and left.

To form platoon columns: Describe several circles.

As skirmishers: Move the object front to rear several times.

589. **Night Marches.** In acting as an advance guard to a column, the company would send out a point a few yards ahead, which would be followed by the rest of the company. Three or four scouts should be sent out a hundred yárds or so ahead of the point. They should advance at a quick pace, keeping in the shadow on the side of the road, being constantly on the alert, using their ears even more than their eyes. They will halt to listen at cross-roads and suspicious places, and move on again when they hear the company approaching. Should the enemy be discovered, one of the scouts will return to warn the advance guard—the others will conceal themselves and watch. Under no circumstances must the scouts ever fire, unless it be for the purpose of warning the company and there is no other way of doing so. The diagram on the opposite page is suggested a good formation for a company acting as advance guard at night. A company marching alone would move in the same formation as when acting as advance guard, except that it would protect its rear with a few scouts. Of course, the nature of the country and proximity and activity of the enemy, will determine the best formation to be used, but whatever the formation may be, always remember to cover well your front, rear and flanks, with

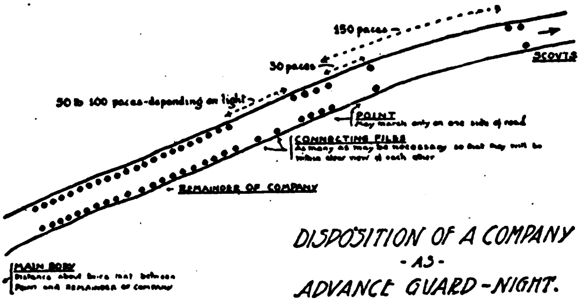

150 paces
SCOUTS
30 paces
50 to 100 paces-depending on light
POINT
May march only on one side of road
CONNECTING FILES
As many as may be necessary so that they will be within clear view of each other
REMAINDER OF COMPANY
MAIN BODY
Distance about twice that between Point and remainder of company
DISPOSITION OF A COMPANY
-AS-
ADVANCE GUARD-NIGHT.

Fig. 189

scouts, whose distance away will vary with the light and nature of the country. *Don't forget that protection in rear is very important.*

The men must be warned against firing, smoking, talking, striking matches, making noise, etc. They should also be informed of the object in view, direction of the enemy, etc.

In night marches the rests should not exceed five minutes; otherwise, many men will fall asleep.

OUTPOSTS

Careful training in outpost duty at night is very harassing, but, in view of its importance, should not be neglected. This instruction should be given with the greatest thoroughness, strictness and attention to detail.

590. **Sentries Challenging.** In challenging sentries must be careful to avoid any noise that would disclose their position. In fact, challenging by voice should be reduced to a minimum by arranging a system of signals by which the officers of the day, patrols, etc., can be recognized. The following signals, any one of which may be decided upon, which would be made first by the sentry and then answered by the approaching party, are suggested: Clap the hands together twice; strike the ground twice with the butt of the rifle; strike the butt of the rifle twice with the hand; whistle softly twice. The replying signal would be the same as the sentry's signal, except that in case of the use of the butt of the rifle, an officer would reply by striking twice on his revolver holster. After repeating the signal once, if it is not answered, the sentry will challenge with the voice, but no louder than is necessary. In case of a patrol only one man will advance to be recognized after the signal has been answered. The sentry must always allow persons to approach fairly near before challenging.

591. **Sentries Firing.** Anyone who has been through a campaign knows how nervous green sentries are, and how quick they are about firing. During the beginning of the Philippine Campaign the author heard of several cases where sentries fired on fire-flies several hundred yards away. Never fire unless it be absolutely necessary to give an alarm, or unless you can clearly distinguish the enemy and are fairly certain of hitting him. In the French Army in Algeria, there is a rule that any sentry who fires at night must produce a corpse, or be able to show by blood marks that he hit the person fired at. If he can do neither, he is punished for giving a false alarm.

592. **Marking of Route from Outguards to Supports.** The route from the support to the outguards, and from pickets to their sentries, should, if necessary, be clearly marked with scraps of paper, green sticks with the bark peeled off, or in any other suitable way.

593. **Readiness for Action.** The supports should always be ready for action. The men must sleep with their rifles beside them and in such places that they will be able to fall in promptly in case of attack. Some men have a way of sleeping with their blankets over their heads. This should not be allowed—the ears must always be uncovered. The commander, or the second in command, with several men, should remain awake. When the commander lies down he should do so near the sentry, which is always posted over the support.

GENERAL

594. **Connections.** It is of the greatest importance that proper connection be maintained between the different parts of a command engaged in night operations. It is astonishing with what facility units go astray and how difficult it is for them to find their way back where they belong.

595. **Preparation.** It matters not what the nature of the night operation may be, the most careful preparation is necessary. Success often depends upon the care and thoroughness with which the plans are made.

All possible eventualities should be thought of and provided for as far as practicable. The first thing to do is to get as much information as possible about the ground to be covered and the position of the enemy, and care must be taken to see that the information is accurate. Reconnaissance must be made by night as well as by day; for, ground looks very different at night from what it does during the day.

LESSON 26

PERSONAL HYGIENE AND CAMP SANITATION

596. **Importance of good health.** The strength of an army is not in its muster rolls, but in the number of men able to fight. Every sick man takes one rifle away from the firing line.

Good health is just as necessary to any army as rifles and ammunition.

A sick army is only a hospital, and no hospital has ever won a battle.

Because of the great demands made upon the body by marching, exposure to all sorts of weather and other hardships, and the nervous and physical strain of modern battle,—because of these demands upon the body, there is no other business in the world whose success depends so much on good health as does the business of soldiering.

Indeed, it is just as necessary for you to take care of your health as it is for you to take care of your rifle and ammunition.

The importance of doing everything possible to care for one's health is shown by the fact that history shows that in every war so far, many more men have died from disease than were killed in battle or died from wounds.

In our Civil War, for instance, for every man on the Union side who was killed in battle or died from wounds, two died from disease. In the Spanish-American War the proportion was 1 to 5½.

597. **Kinds of sickness.** *There are only two kinds of sickness:*

1. The kind that can be caught from other people or from animals.
2. The kind that can *not* be caught from other people or from animals.

DISEASES THAT CAN BE CAUGHT FROM OTHER PEOPLE OR ANIMALS

598. **Germs.** All diseases that can be caught are caused by little, tiny live animals or plants. They are called *germs.* Some of them are so small that you require a magnifying glass to see them.

Diseases that can be caught from other people or animals are called *infectious.* The entrance of germs into the body is called an *infection.*

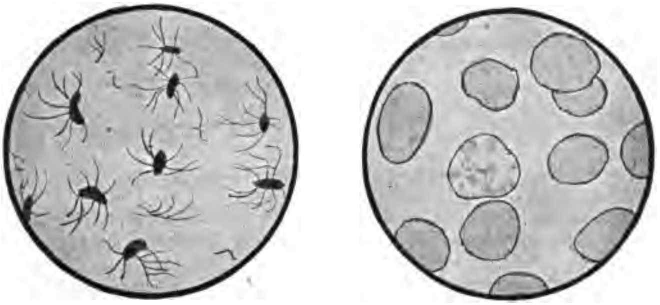
(Note. A *contagious* disease is an infectious disease which is caught by *touching* other people or animals, or articles which have touched them as handkerchiefs, towels, books, letters, dishes, toys or pet animals.)

Infectious diseases are of great military importance, as they cause epidemics or pestilences,—that is, they spread rapidly from person to person until many people are sick at the same time.

They are the diseases that put most of the soldiers on the sick report when their country needs them on the firing line.

But, what is most important, they are unnecessary and can be prevented by care and attention.

The following illustrations show the typhoid and malarial germs and a tapeworm egg as seen through a magnifying glass:



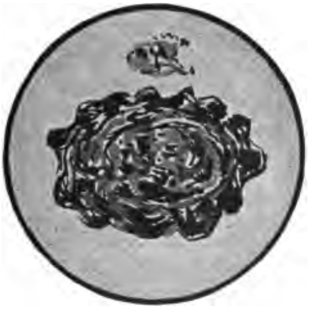
TYPHOID GERMS

Magnified 1200 times

MALARIAL GERMS

Magnified 1200 times

TAPEWORM EGG



Magnified 1000 times

Fig. 190

Germs,—these little, tiny live animals and plants,—have peculiarities, and, just like larger animals and plants, they live and thrive under various conditions.

The polar bear and iceland moss, for example, live only in the arctic regions, and the palm tree and the alligator are found only in the tropics.

The water lily grows in water while the sage brush lives in the dry desert.

In the same way germs (the little animals and plants that cause disease) prefer certain parts of the body to grow in. And just the same as some earth is poor soil for certain plants to grow in so are some persons poor soil for certain disease germs to grow in and consequently such persons may have a very mild case of sickness or none at all, while other persons would have a very severe case of the same disease.

This is important to know because it teaches us the importance of avoiding persons who are only slightly sick, as they are able to give us germs that may grow very well in us and make us very sick, even perhaps causing death.

There is another peculiarity of germs that must be understood.

Just as a man can live safely with a tame bear that he has trained, but that will bite strangers, so do many persons live perfectly well with disease germs in them which, if given to other persons, would make them sick. Such persons are called, *Carriers*, and often live unsuspected while causing sickness among those they meet.

However, all germs do not cause disease,—it's only those that make a poison (called "Toxin") that make us sick.

When a germ does not make a toxin (poison) it is harmless. There are many such harmless germs living in our bodies, some of which are useful to us.

Sickness is really caused by a fight between a germ and its poison (toxin) on one side, and the body on the other. If the body is stronger than the poison, the man gets well. If the poison is stronger than the body, the man dies.

It is not uncommon for different kinds of germs to produce similar signs (symptoms) of disease. Therefore, from your symptoms you may think you have a certain disease while, as a matter of fact, you have another. We see from this the danger of a man trying to doctor himself by buying patent medicines and the chance he takes of injuring himself. If you do not feel well, see the surgeon, who will prescribe for you. Let him decide what is the matter. That is what he is for.

Don't think it manly to keep off the sick report when you don't feel well. It is foolish,—not manly. You may be giving your disease to every member of your squad. That is often the way epidemics get started amongst troops. Make it a military duty to avoid sick people, and if any member of your company complains of headache, chills or sore throat or cold, have him see the surgeon at once. Very often the worst diseases begin with little troubles.

A sick soldier, especially in the field, should be in a hospital where he can be taken care of and where he will not give his disease to others.

Remember that every soldier should be a sanitary sentry always on guard against sickness to himself as well as on guard against sickness to his squad, company and regiment.

While on post as a sentry, if you see anything going wrong you call the corporal of the guard at once and report it. So, likewise in your capacity as a sanitary sentry, if you see anything unsanitary try to correct it at once or report it to those who can correct it.

An army is like a baseball team. It is organized, equipped and trained to win. But it can not win if a lot of the players are sick.

Remember you did not enlist to be sick when your country needs you to fight.

THE DIFFERENT WAYS OF CATCHING DISEASE

599. There are only five ways to catch disease:

1. BY BREATHING IN THE LIVE GERMS.
2. BY SWALLOWING THE LIVE GERMS.
3. BY TOUCHING THE LIVE GERMS.
4. BY HAVING THE LIVE GERMS STUCK INTO THE SKIN BY INSECTS THAT BITE.
5. BY INHERITANCE FROM PARENTS.

If you lived on a desert island alone, you could not catch disease, because there would be no one to catch it from, and if a thousand well persons came and joined you, still there would be no sickness, but if one sick person or a "carrier" came, that would be enough to make everyone on the island sick.

600. DISEASES CAUGHT BY BREATHING IN THE GERMS

Colds in the head
Diphtheria
Croup
Tonsilitis or quinzy
Whooping cough
Influenza ("the grippe")
Rheumatism
Running ear or earache
Measles
Scarlet Fever
Mumps
Meningitis (brain fever, spotted fever)
Pneumonia (lung fever)
Bronchitis
Consumption (tuberculosis of the lungs)

The germs that cause these diseases grow well in the dark, warm, moist lining of the nose, throat, windpipe and lungs, and they are coughed or sneezed out or blown out and float in tiny bubbles in the air or fall to dry into dust which is blown about with the wind, and so are breathed in, or they may be transferred directly by kissing invalids and sick children.

HOW TO AVOID BREATHING IN SICKNESS

601. Do not visit sick people or a house where the children are sick.

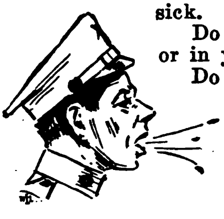


Fig. 191

Distributing Sickness

Do not let other people cough or sneeze over your food or in your face.

Do not allow others to spit on the floor of your squadroom or tent.

Do not do these things yourself.

Blow your nose into a handkerchief that can be boiled or into a piece of paper that can be burned.

Put your hand before your face when you cough or sneeze.

A man with a cough or sneezing should be sent at once to see a medical officer. Put him on sick report. He is dangerous to the rest of the company.

Rinse out the nose with hot, weak salt water at night and especially after a dusty hike.

Brush the teeth after each meal and before going to bed.

Do not pick the nose with the finger nails; it makes sore spots in which germs grow.

On dusty hikes tie a handkerchief across the nose and mouth.

Never sweep the floor with a dry broom. Use a damp mop and so pick the germs up and carry them out instead of driving them up in the air as dust.

When persons have come in contact with diphtheria patients we prevent the disease by injecting an antidote to the poison (toxin) of the diphtheria germ, which we call, *Antitoxin.*

602. DISEASES CAUGHT BY SWALLOWING THE GERMS

- Typhoid fever
- Dysentery
- Cholera
- Summer complaint (diarrhoea of infants)
- Tuberculosis of bones, glands and brain
- Worms
- Trichinosis (fleshworms)
- Ptomaine poisoning

603. **The bowels as a living place for germs.** The germs of the diseases just named and some of the worms, when swallowed, grow well in the bowels and from there may enter the blood. Others stay in the bowels. In any case the germs and the eggs of the worms pass out of the body in the bowel movements. Some of the eggs are swallowed by animals and enter their flesh, which when eaten, partly cooked, will give worms.

604. **Water as a distributer of disease.** When the bowel movements get into water courses these germs enter the water mains of cities and towns or get into reservoirs or wells. In a great many country places what goes down in the privy comes up in the neighboring well, having traveled underground.

You cannot always tell polluted water by its appearance, smell or taste. Unless from a sewer or drain, it may look clear and sparkling, with no smell and have a pleasant, sweetish taste.

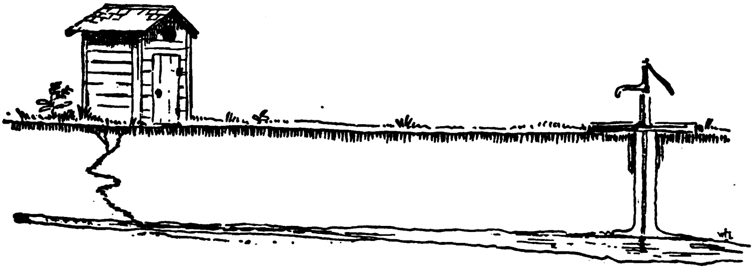


Fig. 192

What goes down in the privy often comes up in the well

605. Avoid water from unknown sources. Water from sources unknown or soiled by sewage, should be avoided as deadly, even when frozen, and should not be used, *unless boiled*, for drinking, brushing the teeth, washing salads or vegetables or rinsing mess kits. All drinks, especially milk, diluted with such ice or water are dangerous.

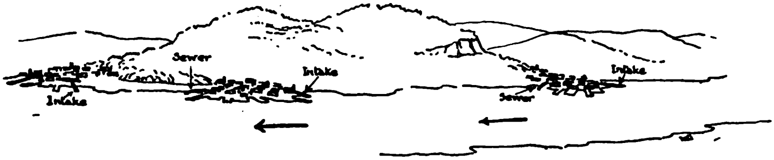


Fig. 193

Water method of infection

606. Vegetables as a distributer of disease. In some localities the inhabitants use the streams for all purposes; drinking, washing clothes, bathing, washing vegetables and table utensils and as a sewer. When kitchen gardens are irrigated with such water the germs are to be found on the cabbages, beets, etc.

In the Philippine Islands, Hawaii, and along the Mexican border, Chinese truck gardeners use diluted human excrement to sprinkle over the plants and the germs may be found between the leaves of cabbage and lettuce and on parsley, radishes, beets, spinach and asparagus, even after a thorough washing.

607. Food, fruit, cigarettes and drinking cups as distributers of disease. Germs are readily smeared on the hands of nurses or friends of the patient and may be transferred to articles of food, fruit, cigarettes or drinking cups, especially in public places, so that the soldier buying at the public stands is likely to have disease handed to him with his purchase.

608. The fly as a disease carrier. The ordinary fly is one of the worst and filthiest transmitters of disease in existence.

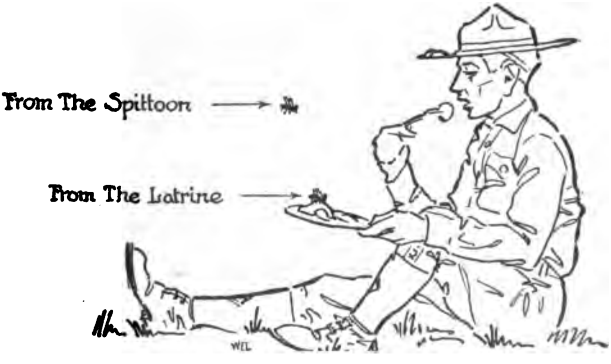


Fig. 194

Flies carry germs from privies, latrines, spittoons, and sick rooms to the food on your table, by means of their smeared feet, in their spit or in their specks.

609. **Tuberculosis.** The germs of tuberculosis may be swallowed and after growing in the bowels pass into the blood and so go to any organ of the body. They cause a great many forms of disease, the principal ones being consumption and bone disease. Great numbers of germs are coughed up and spit out by consumptives. Most of the crippled children which we see, especially those with humped backs and hip joint disease, owe their trouble to tubercle germs that they swallowed in the milk of tuberculous cows.

610. **Dwellings for worms; the company dog as a distributer.** Pigs, dogs, cats, cattle and people with dirty habits, especially children, are liable to have worms. The eggs of worms are passed out and are often smeared on the hands and so carried to the mouth. The company dog is often a distributer of worms to the company. He uses his tongue for toilet paper and afterwards licks his coat or licks the hands of his friends. Petting the company dog or any dog or letting him lick your hand is dangerous. You should at once wash your hands.

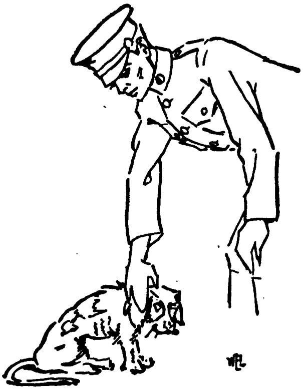


Fig. 195

Nice doggie!
(And "nice doggie" may be giving him some disease)

611. **The hookworm.** The hookworm eggs pass out of the body and hatch out in damp soil. The little worms will enter the skin of the bare feet causing "ground itch" or "dew itch." They then travel to the lungs, pass up the windpipe and are swallowed. When they reach the small bowel they attach themselves in great numbers and poison the blood so that it becomes very thin and makes the patient extremely weak and an invalid.

612. **Trichinosis** (pronounced *trick-i-nó-sis*). Certain very tiny worm eggs are found in the flesh of animals which, when eaten partly cooked, are swallowed alive and will grow in the bowels. In one form of the disease the worms burrow into the muscles and make little stony cocoons which give great pain like rheumatism and may cause death. This disease is called trichinosis.

613. **Ptomaine poisoning.** Ptomaine poisoning is due to the poisons of germs that grow in spoiled meats, fish or milk.

HOW TO AVOID SWALLOWING DISEASES

614. Do not drink water that is not called safe by your company commander. If you have no one to ask and are traveling, it is safer to drink tea or coffee, because they have been made from boiled water, or to drink bottled mineral waters. In the field boil your drinking water. Boiled germs are dead and will not grow. They are, therefore, harmless.

614 (contd.)

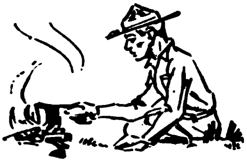


Fig. 196

Boiling water to kill germs

Beware of water from wells, farm pumps, ponds, cisterns, water coolers and barrels, especially in railroad cars, stations and ferry boats.

Do not drink lemonade, soft drinks or milk from peddlers around troop trains and camps. Buy these things from your post exchange.

Always drink out of your own cup. Beware of the public drinking cup.

Always wash your hands before going to meals and before putting things into your mouth, especially after going to the latrine or handling animals.

Do not adopt strange dogs and do not pet dogs.

Before eating fruit or raw vegetables, wash and peel them unless picked from the tree by yourself.

Do not eat food that is spoiled, smells or tastes badly or is fly-blown or maggoty or full of bugs.

Do not eat food which is not sufficiently cooked. All smoked, dried or salt meats or fish, such as ham, bacon, sausage, dried beef, bloaters, salt mackerel or codfish, must be well-cooked, as they may contain "Measles" or other worm eggs. Cooking kills the eggs.

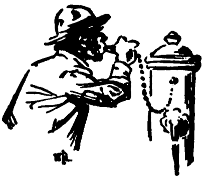


Fig. 197

Next!
(What germs will he leave on the cup)

Do not eat food exposed on public stands to dust, flies, dirty hands, dirty water, dirty cans, or dirty glasses and buckets.

Do not allow flies to breed in manure or walk on your food. This is possible by burning manure or burying it, at least three times a week (daily is safer), or spreading it out very thin so as to dry in a hot sun which kills maggots. Use fly traps, "swatters" and fly paper. A teaspoonful of formaldehyde (obtained from the surgeon) in a saucer of water is a good fly poison.

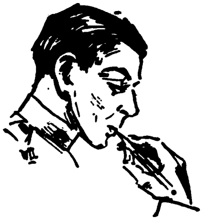


Fig. 198

Swallowing sickness

Do not wet lead pencils with your spit.

Do not wet your fingers with spit when you deal cards or turn over pages of books or magazines.

Keep the teeth brushed and the mouth clean. Have decayed teeth repaired at once. Decayed teeth drop out and they cause abscesses, which may destroy the jaw bone or cause brain fever. Old snags give the stomach the germs of rotting, which cause dyspepsia.

The great prevention of typhoid fever, called *Typhoid Prophylactio,* depends upon the fact that the typhoid germs when swallowed enter the blood and make a poison (toxin). The body makes an antidote (counteracting remedy) for this toxin called an antitoxin.

Let us compare the body to an army camp. Rioters / *Typhoid germs* } enter and destroy and damage (action of the toxin). { The guard turns out / *Antitoxin is made* } and tries to overcome the rioters. A fight follows (this is the symptom of the disease). $\left.\begin{array}{l}\text{The rioters}\\ \textit{The Typhoid germs}\end{array}\right\}$ are overcome and a period (convalescence) follows in which the $\left\{\begin{array}{c}\text{camp}\\ \textit{body}\end{array}\right\}$ is restored to a normal condition.

Knowing this we play a trick.

We inject fifty million dead typhoid germs in a little salt water under the skin. Immediately the $\left\{\begin{array}{c}\text{guard}\\ \textit{antitoxin}\end{array}\right\}$ turns out only to find the rioters dead. Their bodies are carried off. This is the period of dizziness, headache, nausea and slight fever which some few feel after the first injection. The $\left\{\begin{array}{c}\text{guard}\\ \textit{antitoxin}\end{array}\right\}$ remains $\left\{\begin{array}{c}\text{on duty patrolling}\\ \textit{floating in the blood}\end{array}\right\}$. Ten days later we repeat the trick with 100 million dead germs and more $\left\{\begin{array}{l}\text{guard turns out}\\ \textit{antitoxin is made}\end{array}\right\}$. The increased $\left\{\begin{array}{c}\text{guard}\\ \textit{antitoxin}\end{array}\right\}$ remains $\left\{\begin{array}{c}\text{on guard patrolling}\\ \textit{floating in the blood}\end{array}\right\}$.

Ten days later we repeat the trick for the third and last time when all the antitoxin possible is made. This guard or antitoxin remains patrolling in the blood for about three years or longer, so that if some live typhoid germs enter the body later and begin to make trouble they are overwhelmed by the large guard at once and no damage is done,—that is, no sickness results.

DISEASES CAUGHT BY TOUCHING THE GERMS

615. (Or by having them rubbed into a cut, wound, chafe, sore or other opening in the skin.)

- Ringworm
- Mange
- Barber's Itch
- Dhobie Itch
- Sore eyes
- Inflammation and pus ("matter")
- Boils and pimples
- Carbuncles
- Erysipelas (St. Anthony's Fire)
- Blood poisoning
- Gangrene
- Lockjaw
- Rabies (hydrophobia)
- Glanders
- Chicken pox
- Smallpox
- Chancroid
- Syphilis (the "Great pox")
- Gonorrhœa (clap)

Lice, scabies, fleas, chiggers, bedbugs and screwworms are also caught by touching.

Ringworm, mange, barber's itch, dhobie itch and some forms of eczema are due to small plants, called "Fungi," which resemble the mould which grows on cheese or the mildew on leather. They are carried from person to person by finger nails and hands and from dirty water to those who bathe in it or have their underwear washed in it. Children and recruits are often infected.

The germs that cause inflammation in wounds, boils, abscesses and blood poisoning are always to be found on the skin and are everywhere in nature where men and animals are found.

The germs of lockjaw, gangrene, and gas gangrene are found in manure and in soil fertilized with it; hence, a bullet which passes through such soil before wounding carries these germs into the wound. Any wound soiled with such dirt will be infected. Also, wounds made by toy pistols and fire-crackers often contain lockjaw germs.

Glanders is a disease of horses and mules. The germs are caught from the running noses of the animal which may sneeze in the face or on the hands and so be carried to the nose or eyes of the man.

Hydrophobia is caught from the bite of mad (rabid) dogs. The germs of hydrophobia are in the spit of mad (rabid) dogs, and they travel through the nerves from the bite to the brain.

Chicken pox and smallpox are caught by touching patients or handling objects which they have handled, as handkerchiefs, towels, bedding, pet animals or toys.

LESSON 27

HOW TO AVOID TOUCHING DISEASES

616. Keep your skin clean with soap and water.

Do not bathe or wash your clothes in dirty water, have them boiled when laundered.

Do not go barefoot, even in barracks.

Do not use towels or toilet articles of other people, especially in public wash-rooms unless they furnish a fresh towel for you. Do not sleep in houses left empty by the enemy unless ordered to do so.

Do not sleep in native shacks in the tropics.

Do not rub the eyes with dirty hands. When dirt gets in have a doctor get it out.

If you have clap, do not rub your eyes with your hands, and wash your hands well with soap and water after taking treatment or passing water.

Do not handle dogs or cats, especially strange or sickly ones.

Do not clean the ears with sticks or straws,—have a doctor do it for you.

Do not have cheap, advertising dentists fix your teeth. Have the army dentist fix them and see him at least once every six months,—or see a good civilian dentist.

Do not have pictures tattooed on your skin.

Do not smoke other men's pipes.

Do not handle or touch wounds with anything but a first aid package.

Beware of chipped drinking glasses in cafés, restaurants and other places. The slightest cut from such a glass whose chipped part has been in contact with the mouth of a syphilitic person will give you syphilis.

The company barber must scald his razors and soap after every shave and must not use caustic stick on sores and cuts.

Small pox is prevented by rubbing the germs of cowpox, a very mild disease, into a scratch in the cleaned skin. This is called vaccination. The body makes an antitoxin to cowpox, which is also an antitoxin to smallpox.

Hydrophobia is prevented by avoiding dogs, by having pet dogs muzzled and by catching and tying up or killing strange dogs. There is no hydrophobia in England or Australia because for a number of years all dogs were muzzled. Now dogs do not have to be muzzled there.

If bitten by a rabid dog, you must take the Pasteur treatment as soon as possible.

617. **War Department orders regarding venereal disease.** General Orders No. 31, War Department, 1912, direct that no enlisted man "absent from duty on account of disease resulting from his own intemperate use

of drugs or alcoholic liquors or *other misconduct* shall receive pay for the period of such absence.''

General Orders No. 71, War Department, 1913, amending G. O., 17, W. D., 1912, direct that, ''Commanding officers will require that men who expose themselves to the danger of contracting venereal disease shall at once upon their return to camp or garrison report to the hospital or dispensary for the application of such cleansing and prophylaxis as may be prescribed by the Surgeon General. Any soldier who fails to comply with these instructions shall be brought to trial by court-martial for neglect of duty.'' It further states that a medical officer and each organization commander will make two physical inspections of all the enlisted men of the command (except married men of good character) each month to observe the state of personal cleanliness and detect venereal diseases.

DISEASES CAUGHT FROM BITING INSECTS

618. Malaria
Yellow fever
Dengue fever
Typhus fever (jail fever)
Plague (bubonic fever)
Rocky Mountain fever (spotted fever)
Sand-fly fever

The germs of malaria, yellow fever and dengue fever live in the blood and are sucked up into the blood by mosquitoes when they bite.

Malaria germs, however, will develop only in the mosquito called *Anopheles*.

Yellow fever germs will develop only in the mosquito called *Stegomyia*.

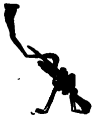


Fig. 199 The malaria mosquito (She stands on her head)

Dengue fever germs will develop in the mosquito called *Culex* and in *Anopheles*.

After a period of development in these mosquitoes the germs will find their way to the spit glands and are injected into the person whom the mosquito bites. (Note. Male mosquitoes cannot bite.)

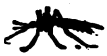


Fig. 200 The Culex mosquito (She is humpbacked)

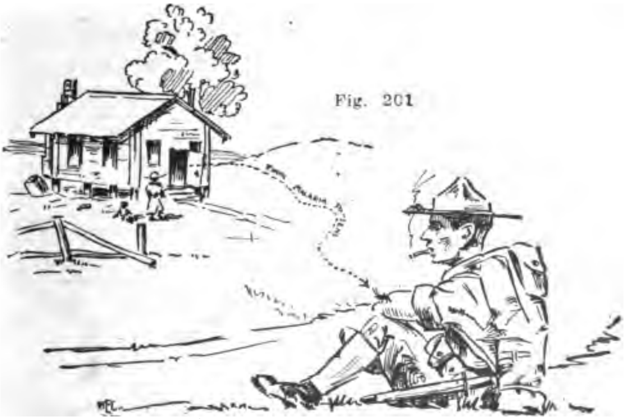


Fig. 201

Catching malaria

The malaria mosquito can get the germs any time she bites a person who has them in the blood and many persons have them long after getting well of the chills and fever. They are *carriers*. The malaria mosquito cannot give the germs to another person until they have passed through a period of about 12 days' growth in her body. Then she can give them as often as she bites.

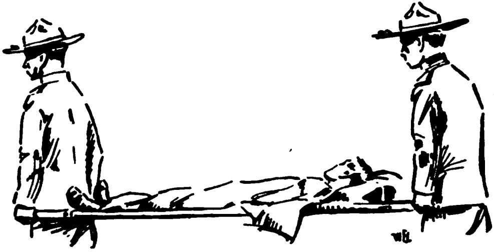


Fig. 203

Twelve days later

The yellow fever mosquito must bite the yellow fever patient *during the first three days of his fever,* for after that time the germs are not in his blood. She then must have them develop in her for twelve days before her bite is deadly.

The only way that malaria, yellow and dengue fevers can possibly be caught is from mosquitoes.

Plague is a disease of rats, squirrels and other small fur bearing animals found in China, Hawaii, the Philippines, and in California, Idaho, Oregon, Washington and New Orleans. *The disease is carried by fleas* which bite the rat and then when the rat dies of plague the flea hunts another rat or some person in the house and bites him, giving him the germs.

Rocky mountain fever (spotted fever) is a disease of wild game in the northern part of Idaho and in the Bitter Root Valley in western Montana. It is carried to trappers, hunters, prospectors and others by ticks which infest the game.

Typhus fever is carried by body lice.

Sand-fly fever is carried by sand flies. It is found only in Asia and the Mediterranean Sea.

HOW TO AVOID DISEASES CAUGHT FROM BITING INSECTS

619. **Malaria, yellow and dengue fevers.** To avoid the diseases carried by mosquitoes we screen all houses with fine wire screens and use mosquito nets on the beds. Also, under certain conditions we take daily doses of quinine in malarious regions.

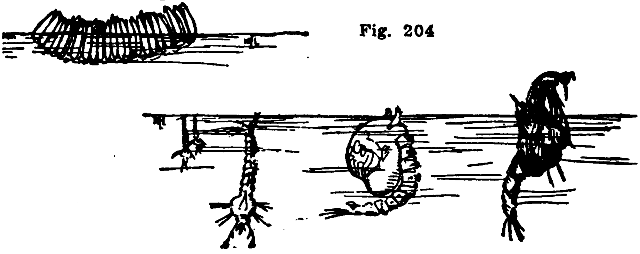


Fig. 204

The eggs The larvae The pupa The mosquito leaving the pupa skin

We kill the mosquitoes.

To do this we must know their habits.

Mosquitoes all lay eggs in water. These hatch out as *wigglers* or *larvae,* which have to come to the top frequntly to breathe. In about twelve days or longer they turn into *tumblers* or *pupas,* which in a few days longer come to the top when their backs split open and the mosquito comes out and flies away.

The malaria mosquito is domestic like the chicken and lives around and in houses hiding in the grass, bushes or dark corners and comes out to bite at night. When a settlement is abandoned the malaria mosquito moves away also. She rarely flies far from home and is not found much beyond 500 yards from a house. She lays her eggs in running clear water preferably, but she will accept water in hollow trees, between the leaves of lilies or air plants or in vases of flowers, or in cisterns and water butts.

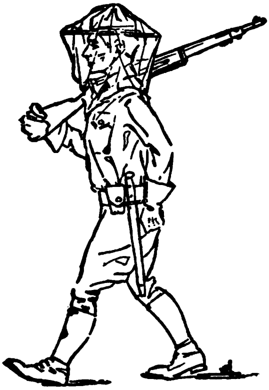


Fig. 205
On Guard
(No mosquito bites for him)

The yellow fever mosquito is domestic like the house cat. She hangs around the house and rarely flies as far as the next house even, preferring to travel on a visitor's coat. She will bite in the day time and will lay her eggs in any little collection of water in the house, the eaves trough, the water barrel, old tincans or bottles, pitchers, vases or the refrigerator drip.

The dengue mosquito is a marsh and town mosquito. She flies far and well and will breed in any sort of water, even brackish.

To kill mosquitoes—

We catch them in the house.

We empty all water from tincans, old barrels, etc.

We cover with wire all cisterns and water barrels.

We fill in all puddles and drain off marshes.

We put oil on all pools and streams to choke the wrigglers.

We cut down grass and bushes around houses.

Plague is prevented by ridding the town or city or ship or building of rats by killing, trapping, closing up burrows, removing trash and rubbish and making concrete cellars and tin lined granaries.

Ships prevent rats from boarding by a tin shield around the ropes that fasten them to their docks.

Squirrels, weasels and woodchucks sometimes have plague. It is wise not to pick up dead squirrels, weasels or rats except with tongs.

DISEASES THAT CANNOT BE CAUGHT FROM OTHER PEOPLE OR ANIMALS

620. These diseases comprise injury done to the body in one of three ways:

By ill treatment.
By poisons.
By violence.

Any one suffering injury due to any one of these causes is not so able to fight off germs.

A healthy body prevents sickness. There are some persons who have never been ill in their lives because they have healthy bodies that are able to make antitoxins in sufficient amounts to meet and conquer germs and their toxins.

If, however, even the most robust and healthy person be starved, his body chilled, or overheated, or exhausted from fatigue and lack of sleep, or poisoned by alcohol or drugs, or his mind depressed by fear, worry or disappointment, or if he dwell in filth and foul air, he will readily become sick from some attacking germ.

A cur dog can worry an exhausted lion,—and so can small germs get the best of an exhausted man.

Taking care of the body is the best way to keep in good health.

HOW TO AVOID INJURING THE BODY BY ILL TREATMENT

621. The knowledge of taking care of the body is called *Hygiene,* and the rules, which are as follows, are very simple:

1. KEEP THE SKIN CLEAN.
2. KEEP THE BODY PROPERLY PROTECTED AGAINST THE WEATHER.
3. KEEP THE BODY PROPERLY FED.
4. KEEP THE BODY SUPPLIED WITH FRESH AIR.
5. KEEP THE BODY WELL EXERCISED WITHOUT EXHAUSTION.
6. KEEP THE BODY RESTED BY SUFFICIENT SLEEP.
7. KEEP THE BODY FREE OF WASTES.
8. KEEP THE MIND BUSY AND HAPPY.

Sanitation is the practice of the laws of Hygiene.

622. **RULE 1. Keep the skin clean.** A dirty body invites sickness. Small troubles such as chafing, sore feet, saddle boils, sore eyes, felons, whitlows, earache, toothache, carbuncles, fleas, lice and ringworms, are all caused by lack of cleanliness, and they put men on sick report.

Owing to excessive perspiration a daily bath with soap is desirable in summer and in the tropics, the year around. At least a weekly bath should always be taken when possible. When not possible to bathe, take a good rub daily with a dry towel.

Keep your feet clean with soap and water and put on dry socks before sleeping at night. Soiled socks should be washed and hung up to dry over night.

Keep your finger nails trimmed short with scissors or knife. Never bite them off. Keep them cleaned and keep your hands washed, especially at meal times.

Underwear must be washed in clean water, hot when possible and when soiled change as soon as possible.

Do not bathe or wash your clothes in dirty water. Bathing in water containing much alkali (hard water) or fine sand or mud will make the skin smart or chafe easily and cause sore eyes.

The hair of the head should be kept well-trimmed.

623. RULE 2. Keep the body properly protected from the weather. Clothing of the soldier is worn as a protection. Too much causes sweating and exhaustion on the march and too little causes chills and frost bite.

It should always be lose, not only because tight clothing interferes with the free and easy movements of the body, but especially because it slows the flow of the blood to the hands, feet and head, where it is most needed.

Do not rest in wet clothing nor let it dry on the body, if possible to change.

When resting after exercise or while doing guard at night, more clothing should always be put on.

When sleeping, especially in the tropics or hot weather, the belly must be protected from chilling by a flannel bandage or the shirt tucked into the drawers, or a pillow laid across.

Never sleep in a draught without covering.

It is wise to tie a handkerchief over the head and ears at night to prevent sore throat and earache.

Never sleep on the bare ground when you can sleep on branches, hay, or anything else.

When possible, in bivouac pick a dry place on high ground in the shelter of a hill or woods to lie down on.

In the heat of the summer and in the tropics keep out of the sunshine as much as possible, and when in it always wear your hat.

When it is very cold at night wrap the feet in clothing, grass or straw to prevent freezing while asleep.

The first feeling of frost bite is numbness and the first sign is a marble whiteness. Frost attacks first the nose, ears, cheeks, fingers and toes.

Sun glare and snow blindness may be prevented by colored goggles or a handkerchief tied across the face with a small slit for the eyes or by greasing the face and eyelids and rubbing in charcoal around the eyes.

624. RULE 3. Keep the body properly fed. Your company mess is sufficient for your needs and is wholesome, provided it is well chewed. Large lumps of food take a longer time to digest than small particles do, and so they tire the stomach and also cause constipation, gas and indigestion with headache.

Do not eat food left behind in strange houses or by the enemy, nor food that smells or looks bad.

If haversack rations are issued to you, do not eat them all at the first meal, but make a division for each meal. Stuffing will make you sick on a hike and later, hunger will drive you to eat things you would not touch at other times.

Before starting on the day's hike drink all the water you can and fill your canteen with water only.

Be sure your canteen does not leak.

After starting, do not drink anything until the end of the hike.

Do not eat ice or snow to quench thirst. It will make you more thirsty. Do not drink large quantities of cold spring water when heated,—it will give you a very bad bellyache.

Do not drink whiskey or beer, especially in the field. It will weaken you and favor heat exhaustion, sunstroke, frost bite and other serious troubles.

Alcohol muddles the mind and clouds thoughts, and so causes a feeling of carelessness and silliness that may ruin some military plan, or give the whole thing away to the enemy and with it the lives of yourself and your comrades.

The soldier who drinks alcohol will be among the first to fall out exhausted.

If you use tobacco, do not chew or smoke while marching. Tobacco is only a dope and increases the work of the heart.

A cup of hot coffee is a good stimulant.

625. **RULE 4. Keep the body supplied with fresh air.** The brain, kidneys and other internal organs require oxygen (a part of the air) continually, and if deprived of it for five minutes, the body will die. Therefore, it is easy to see that we must continually get plenty of fresh air into the lungs to supply the blood which carries the oxygen throughout the body. Except in winter time when steam-heated barracks are filled with sleeping men, it is not, as a rule, difficult to get all the fresh air we need. The air in a dormitory should smell sweet and clean, even though warm. Fresh air should be continually admitted in a way that will not throw a draft on any of the sleepers.

It is much better to sleep in a cold room with fresh air than in a hot stuffy one.

Fresh air not only prevents consumption, but it will cure mild cases of consumption without other medicines.

626. **RULE 5. Keep the body well exercised without exhaustion.** Exercise is absolutely necessary to good health. Lack of exercise of any set of muscles will cause them to grow flabby and weak. Outdoor sports are the best form of exercise, because they use all the body muscles, and are in the open clear air.

Exhaustion, on the other hand, not only weakens the muscles of the body, but it also lessens the vital forces and powers to resist germs.

627. **RULE 6. Keep the body rested by sufficient sleep.** Give the body enough sleep. Eight hours of uninterrupted sleep are enough for the average man, and you should always have that much in every twenty-four hours. Remember your comrades need it also; so, if you come in after taps, do not make a racket with slamming doors, heavy tramping, talking or whistling. And in camp be careful not to fall over tent ropes or step on other sleepers. Do not drink coffee at night,—it will keep you awake and rob your body of needed rest.

When on the march take advantage of every halt to rest your body. As soon as the command is given to fall out, select, if possible, a good dry place on the side of the road to sit or lie on. If carrying the pack, loosen it and rest back on it, in a sitting or lying position. If the march has been a long one, lie flat on your back and raise the feet in the air. This is a quick way to remove the heavy dragged feeling of the feet and legs and to rest the heart, because the blood runs out of the legs into the body.

628. **RULE 7. Keep the body free of wastes. Get into the habit of emptying the bowels at a certain hour each day.** Immediately after breakfast is a good time. This is a habit that can be cultivated just like any other habit. Cultivate it. It will do much to keep you in good health.

Always empty the bowels and bladder, especially the bowels, whenever you have the least desire to do so. Do not allow a little personal inconvenience or laziness to prevent you from doing this. The wastes from the bowels and bladder, especially the bowels, are poisons that should always be expelled from the body just as soon as possible.

The free drinking of water flushes the bladder and helps to loosen the bowels. A glass of hot water soon after reveille will not only help to loosen the bowels, but it will also benefit the stomach and flush out the bladder. Some people drink a big glass of water, either hot or cold, every morning before breakfast.

Proper physical exercise and eating ripe or cooked fruits will also do much to keep the bowels open.

Pressing and rubbing *downward* with the left hand on the lower *left* side of the belly will do much to induce a movement of the bowels.

Most constipation comes from swallowing food in large chunks, drinking large quantities of cold liquids with the meals and eating heavy articles of diet, such as, beans, fried pork, hot bread.

Do not get into the habit of using laxatives to keep the bowels open. Their continued use is injurious. Use the natural means suggested above.

The constant moderate use of alcohol injures the kidneys and when they become too weak to work and throw off the waste, a deadly disease, called "Bright's Disease," results.

629. RULE 8. Keep the mind busy and happy. The amusements of the post, fort or camp should be patronized. Visit the company recreation room and library, the post library, post exchange, movies and the gymnasium, and indulge in baseball, bowling, etc.; also in swimming, when possible.

When tired of these amusements and recreation, apply yourself to some line of study. The post school is for that purpose. The chaplain and your company commander may start you upon a career that may become of great advantage to you in the service and after you leave it.

And don't forget to write home. Your letters will give you satisfaction in writing them, and will afford pleasure to your people, and the replies will keep you in touch with home, the source of the best associations of life.

Never loaf, keep busy and you will keep happy and out of sickness and trouble.

CAMP SANITATION

630. By "**Camp Sanitation**" we mean what we must do to take care of the health in camp, where we have not the comforts and sanitary conveniences of barracks. In camp the comforts and sanitary conveniences of barracks (toilets, bath-rooms, sinks, running water, etc.) are replaced by various substitutes called "Camp expedients" (latrines, incinerators, urinal tubs, etc.), which are designed to promote, secure and preserve the health and comfort of the troops.

Everything must be done to prevent the existence of conditions that will cause stinks and be favorable to the breeding of flies and mosquitoes, the two great carriers of disease. Therefore, we see the vital importance of cleanliness,—absolute cleanliness,—of body, clothing, equipment, tents, ground, sinks, kitchen, etc.

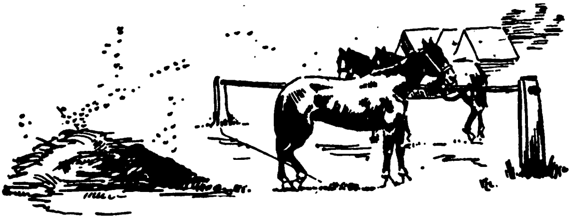


Fig. 206

Flies breeding on the picket line

Your tent must be kept clean and in order. When possible clean your shoes before entering your tent in muddy weather.

The company street and the ground around all tents must be kept clean. Do not throw food, slop water, rags, paper, empty tin cans, or other trash and refuse on the ground, but put them in the box, the can or other recepticle provided for the purpose or throw them into the kitchen incinerator (the place prepared for the burning of trash and refuse).

Do not defile the company street or camp grounds by spitting, blowing the nose, urinating or moving the bowels there. All these things transfer germs that are liable to cause disease.

Spit in a fire when you have to spit.

Blow the nose in a piece of paper that can be burned or a handkerchief that can be boiled.

Use the urinal tub at night and the latrine by day. If an open trench is used as a sink, always cover your excrement with dirt. If the sink is inclosed by a box with stool-covers, always put the covers down as soon as you are through so as to keep the flies out.

Kitchen garbage must be burned in a pit by the kitchen or put into *covered* cans for hauling away. *The covers must be kept on the cans at all times,* so as to keep out the flies.

Do not ride horses through camp except on the roadways.

The camp is no place for dogs. When you go into the field leave the company dog back in the post, and do not pick up any stray dog on the march. All stray dogs following troops should be shot. Dogs defile the camp,—often spoiling rations in the store-tent, and they can easily convey diseases, especially rabies (hydrophobia). A mad dog (that is, one that has rabies) is at first affectionate and then becomes delirious, when he snaps at everything and runs until exhausted.

It is dangerous to pick up tired out or sicky looking dogs, or to fondle strange ones.

Keep the inside of your tent dry and free from odors,—so, in pleasant weather always have your tent walls raised, and air your blankets and extra clothing often.

It is a very natural thing to try and stop up all crevices in and under the tent in cold weather. This will make the tent close and stuffy at night and you will wake up feeling tired, stiff, heavy and possibly with a headache, all due to insufficient fresh air.

In cold weather heat the tent and wrap up warmly and be sure to let in fresh air, preferably through the door.

As soon as your tent is pitched, ditch it. When it rains loosen the guy ropes to prevent the pegs from pulling out and the tent collapsing.

Clean your body and your clothes daily as thoroughly as the means at hand will permit. Never lose an opportunity of taking a bath or of washing your socks and underclothing. A bullet passing through dirty clothes will often cause a seriously infected wound which would otherwise be comparatively harmless.

In the morning wash the face and neck with cold water. Don't forget to use your toothbrush afterward.

The feet should be bathed or mopped with a wet towel every evening to invigorate the skin. Dirty feet invite blisters.

The feet should be kept clean and the nails cut close and square. An excellent preventive against sore feet is to wash them every night in hot (preferably salt) water and then dry thoroughly.

Rubbing the feet with hard soap, grease or oil of any kind and putting foot powder in the shoes before starting on a march are also good.

A little alum in warm water is excellent for tender feet.

Blisters should be pricked and the water let out, but the skin must not be removed. Adhesive plaster on top of the blister will prevent the skin from being pulled off.

In the continued absence of opportunity for bathing it is well to take an air bath and moist or dry rub before getting into fresh underclothes.

If the lack of opportunity to wash clothes continues for any length of time, soiled clothes and bedding must be frequently exposed to the sun and air. Sunshine is a good germ killer.

Keep the body protected against the weather. Do not run out at night in the cold in your undershirt nor in your underwear.

In cold weather do not go around without an overcoat just to show how foolish you are.

Do not go without a hat in the tropical sun.

Wet clothes should be changed at the first opportunity. Never let wet shoes dry on your feet over night.

In cold weather make your bed on the ground on straw, leaves or branches for warmth. In warm weather bunks are preferable.

Never sleep on the bare ground, especially damp ground, when you can get hay, straw, grass, leaves, branches or anything else.

Before going into the field see that your clothing is in good repair, all buttons are on, your underwear in good condition, your socks have no holes, and that your shoes are sound and strong, and have hob nails. Do not have the soles literally covered with nails, but have them put in as shown in the illustration.

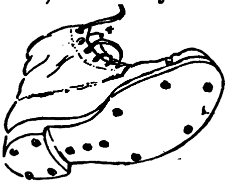


Fig. 207

Carry an extra pair of shoe laces. A broken lace will loosen the shoe which will soon cripple you.

Always wear woolen socks to march in. Cotton socks cause blisters.

Wear shoes that fit and keep them soft with grease.

630 (contd.)

Under no circumstances should a soldier ever start off on a march wearing a pair of new shoes.

Be sure to have some needles and pins in a well-corked bottle (to keep them from rusting), some coarse thread, some buttons, a pair of small scissors, a string, an awl and a small knife.

Keep the body properly fed. Do not eat all of your day's ration at the first halt and do not buy fruit and pies from peddlers, but eat what comes from your company kitchen.

In the company kitchen there should not be a single fly on the food although there may be flies in camp. Food must be kept screened or covered until served, and not served until ready to be eaten.

Neither the cook nor his assistants should have any infectious diseases. If they have, epecially gonorrhœa and "walking typhoid" and even trivial ailments, they should be treated by a medical officer at once.

If you are the company cook, keep everything in your kitchen and mess tent clean with hot water and soap. Boil your utensils and dish rags. Throw all your slops and garbage into your kitchen incinerator.

Stable sweepings if well dried and mixed with twigs, leaves and rubbish will make fuel and save kindling wood.

Exercise is not done at the discretion of the soldier when in the field. Nevertheless, in periods between military engagements or maneuvers exercise in games and sports keeps a man fit and is a pleasure.

Rest and sleep are most important for a soldier in campaign. Keep the body rested by plenty of sleep. Do not join idle parties going to walk the streets of the nearest town at nights, nor sit up late playing cards, nor wander in native towns after dark.

COMBAT AS ILLUSTRATED BY SMALL PROBLEMS FOR INFANTRY

INTRODUCTION

NOTE: The following 14 Problems were prepared by Capt. A. W. Bjornstad, U. S. Army, under the direction of the DEPARTMENT of MILITARY ART, Army Service Schools, Fort Leavenworth. The following questions are from the preface of the Service Schools pamphlet which contains these problems.

"This work was undertaken in view of the many applications received by the Army Service Schools for information as to literature which would assist in the instruction and training of non-commissioned officers. Its purpose is to place before Infantry officers and non-commissioned officers a series of problems which may be studied to advantage. The principal value of the book, however, is believed to lie in the method which it teaches. There are hundreds of single sentences in Infantry Drill Regulations, 1911, each of which can be made the basis for an instructive problem for indoor or outdoor work. It is hoped that the examples contained in this book will assist industrious company officers in preparing problems for platoons, squads, patrols, outguards, etc., using the applicatory method which is so largely responsible for whatever success the Army Service Schools have achieved in teaching tactics.

It is in accordance with the practice of these schools to view many of the solutions herein as no better than other possible solutions. The essential thing is to train officers and non-commissioned officers to adopt promptly some measure which is practical, effective, and consistent with the teamwork which Infantry Drill Regulations seek to establish. To quote paragraph 372 of those regulations, "In a given situation it is far better to do any intelligent thing consistent with the aggressive execution of the general plan than to search hesitatingly for the ideal. This is the rule of conduct for subordinates who are required to act upon their own initiative."

HOW TO HANDLE SMALL PROBLEMS FOR INFANTRY

The following suggestions are given the instructor: Cause the student to study the problem at home with the aid of the map in the back of the book.

When the students come to class, cause them to close their books but each student to spread his map before him on the desk. The instructor opens his own book and has his map before him.

Then for example, for the first problem, he calls on Mr. Brown

''Mr. Brown, what is the scale of this map? What map are we using? What is the Vertical Interval? What is the First Problem about? Tell us something about the action of an Advance Guard.'' And then marks Mr. Brown, and calls Mr. Jones

''Mr. Jones, State the SITUATION, and show me the places on the map. What happened around Bigleville? Where is our battalions objective? What was 'Mr. Allen' required to do?'' etc.

The students should learn these problems as they are herein given. They might be able to give other solutions of their own, but before they begin to try to handle troops themselves they should learn how those troops would have been handled by experienced officers.

It is not thought well to let students try their own solutions until they have learned the solutions herein given, then if there is still available time at the end of the course they should be given problems to solve, either on this map or on the B & H Relief Map. By that time they will understand problems much better.

In printing a special edition of ''Small Problems for Infantry'' for use in training camps no attempt has been made to revise the text in the light of the methods of trench warfare developed in France during the present war. Special regulations covering the subject will probably be issued. The present text deals with operations and combat in the open, which have lost none of their importance to us.

And the following from the Introduction:

The non-commissioned officer of Infantry is called upon to perform a greater variety of duties than the non-commissioned officer of any other arm or special service, except, probably, Cavalry. He deals with elements which at first glance seem quite simple—men and rifles—marching and shooting. But when the varied employment of these elements in war is fully comprehended and analyzed, we find human and mechanical vagaries and uncertainties which defeat the leadership of a novice, or even of a practiced non-commissioned officer whose development of mind and soul has been so deficient as to leave him without courage, force, and initiative.

The possession of force and initiative inspires self-confidence. Courage is two parts self-confidence and one part bravery. The non-commissioned officer, or prospective non-commissioned officer, who after a fair trial displays no progress in the development of force and initiative, should be dropped before he becomes a fixture in the company. It is not in every man to become even a fair non-commissioned officer and, considering the heavy demands on courage and discipline, the Infantry can least afford to tolerate a non-commissioned officer who is only fair.

Our difficulty seems to lie in the failure to appreciate the conditions under which the non-commissioned officer must work in war. An indifferent sailor can sail a ship in fair weather and off shore. His ship will seem as trim and sightly as any other—if we do not inspect it too closely. But the sailor who is to weather a storm, like the Infantry sergeant or corporal who faces an enemy, must have reserve of courage, driving power, and skill. In time of peace we can hardly simulate conditions which make a demand on this reserve, but we must build it up, nevertheless. It is the distinguishing mark of well-trained troops. The lack of it accounts for the low value of organizations of reasonably brave men, the officers and non-commissioned officers of which carry only the outward marks of leadership.

If Sergt. What's-his-name barks "squad right, march" and "club rifle, swing" at a flock of recruits for five years, and does it well, he will acquire a certain confidence and bearing, it is true. This is valuable, but he needs more. The thousand and one situations that may confront him in war should be presented to him in various guises under conditions which compel him to decide, to act, to indicate his will, and to enforce his will. He is a trained and dependable man when he is, and knows he is, fitted to meet, squarely and vigorously and understandingly, any likely combination of circumstances. His men must have a justifiable confidence in him, and he must have a justifiable confidence in himself. This can result only when he possesses the essential military virtues of a non-commissioned officer—courage, force, and initiative.

Quite recently I expressed some views on the training of platoon leaders and guides (Military Historian and Economist, April, 1916). It seems appropriate to quote the following:

> The platoon is the largest unit susceptible of direct personal control of individuals in the firing line by a leader. It is our present purpose to point out two of the most important functions of the platoon in modern battle, and the change from old conditions.
>
> In the days of short-range weapons a company was under the direct, personal control of the captain. It never exceeded 100 men in our service, and was generally smaller. It fought in close order and responded quite easily to the vocal commands of the captain. Improved small arms and artillery long ago made this conception of company leading obsolete. With the necessity for deploying skirmishers and the utilization of all available cover, the grip of the captain was lost. After a period of years, during which no satisfactory substitute for the former control of the captain was devised, the Infantry Drill Regulations, 1911, appeared with a practical solution. Direct, personal control is now passed to the platoon leaders the moment the company is deployed. Henceforth the captain exerts his will through his four platoon leaders, dispensing with much of the detail which was formerly his concern. The company has become a small battalion. The platoon, formerly an unimportant subdivision for maneuver, has risen to the dignity of an important fighting unit. The sergeant of Infantry has become a leader with a grave responsibility thrust upon him, as we shall show later.
>
> The final test of Infantry is its ability to attack. Attack by Infantry is a combination of fire and movement while under fire of the enemy. To fire effectively, and thus reduce loss from the enemy's fire, and to move resolutely forward at every opportunity, are the simple elements of Infantry attack. A few tubes of paint, a brush, and a piece of canvas are the simple elements of a Rembrandt painting.
>
> The platoon organization and the allotment of leaders are designed primarily with a view to the maximum efficiency in these elements of Infantry attack—fire and movement.

Ordinarily, the Infantry firing line has for its target a thin and indistinct horizontal line. Parts of the line may be invisible or indistinguishable. All parts, however, must be covered with fire, else the sine qua non condition to forward movement, the reduction of hostile fire effect, may be absent. Each man is taught to fire constantly on one point in the thin, horizontal target, or line, that point being the one which, with respect to the section of target previously allotted and announced to his platoon, corresponds to his own position in platoon. Since no two shots fired by him with the same point of aim are likely to strike the same spot, the trajectories of his shots will in time describe a curved cone. The dimensions of the base of the cone will increase as the dispersion (wild firing) increases. If we now imagine the figures described by the cones of many men placed side by side, we see a wide, thin sheaf of fire, the thickness of which increases as the dispersion increases. It is as if many men played streams of water on the target, the nozzles being held parallel to each other. In battle, the bases of the cones merge into one another. Symmetry is lost. Individual fire is lost in the sheaf. Only the fire effect of the sheaf can be observed, if indeed that much can be observed. Fire control is the effort to make the sheaf effective; that is, to carry it into the target and to increase its density by regulating the volume and decreasing the dispersion. It is impracticable to control the sheaf of a long firing line as one unit. The platoon is the subdivision for fire control, the fire unit, and the sheaves of the platoons are regarded and controlled separately.

Movement, the second element to enter into Infantry attack, must ordinarily be effected by small groups making short rushes. To be under fire possibly for hours and then to rise from a position of real or fancied security and rush forward 50 or 100 yards under a hail of bullets and shrapnel demands an effort that all men are not equal to. In former times Infantry fought standing up, partly because it was in close order and partly because the old muzzle-loading musket could not otherwise be loaded conveniently. It was more difficult for skulkers to escape observation. Today each man while firing is, or should be, screened from the enemy's view and this makes both his location and condition more difficult to observe. Furthermore, it is more difficult to advise him of an intended rush and many men who, if duly warned, would willingly join the rush, find themselves mentally and physically inert when they finally realize that their neighbors have dashed forward. A battle field is strewn with men whose only ailment is inertia, induced by causes too numerous to mention. It is folly to fly in the face of history and deny that American troops do such things. Raw troops are hopeless in attack, more so under modern conditions than ever before. The temper of partially trained troops is very uneven. Trained troops will have skulkers enough.

The number of men to engage in a single rush is, of course, variable and depends upon the conditions of the fire fight. The ideal unit for the rush is the platoon. We may be able to use a larger fraction, but we shall frequently be obliged to use a smaller. In any event, the preparations, the warning, and the execution are in the hands of the platoon leader and his assistant, the platoon guide. The details are slurred too much in peace time exercises by those who fail to comprehend the difficulties peculiar to a battle field. In itself the movement looks simple enough, but it requires infinite care, close observation, good leading, and rough discipline. The final signal must not be given until firing has ceased and observation has disclosed that every man is "set" and is, therefore, warned and ready. The leader leads the way to a suitable fire position and halts, but behind the platoon is the sergeant who drives—the platoon guide. He is the man with the club—the policeman.

This dual leadership of the platoon is peculiar to our service and new. Its usefulness in the forward movement has just now been explained. In fire control it is likewise useful. Fire control may be described as a two-man job. The leader's duties in other directions are too numerous and exacting to permit of necessary attention to the conduct of the individual men of the platoon. The duties of platoon disciplinarian fall to the platoon guide. It would not remedy matters to divide the platoon and give each sergeant a half. There would still be a two-man job.

A third reason for this novel organization lies in the fact that losses occur under peculiar conditions. In battle, leaders and men spend most of their time concealed, or partially concealed, from the enemy and, therefore, to a more or less extent, from each other. But concealment of this kind does not render them immune from bullets. It often happens that a man lying some paces from his neighbor is out of action, without the fact being known. If such a fate befall a few platoon leaders, the result could easily be inertia and loss of control, the disintegrating factors of Infantry combat. We have, however, a second in command who lies close to the leader. It is not likely that both will be put out of action in the same instant. If one is killed or severely wounded, the survivor calls a corporal to his side and the pair is restored.

The obstacles to good platoon leadership are innumerable; poor training, excitement, sluggishness, and what not. * * * In view of the unavoidable scarcity of officers, due to absence on other duty and losses, and in view of the heavy losses of Infantry in action, it may be asserted confidently that no company is well fitted for battle unless it has at the outset 12 men trained to the point which justifies us in calling them good platoon leaders. Furthermore, students of Civil War methods and tactics, who are at the same time familiar with the requirements of modern war and training, will agree that a sergeant of Infantry, as our Infantry is organized, must possess training, and a quality of leadership in action fairly comparable to that demanded of a captain in the Civil War.

Each of the 12 senior non-commissioned officers should be able to handle a platoon; the corporals at least fairly well. When squad organization is possible, as is generally the case in the Regular Army, and also in the militia when in camp, it is well to designate a permanent second and third in command of the squad and give these men ample opportunity to lead the squad. A company would thus in time have additional and fairly well trained squad leaders, and they will be needed to meet expansion and losses.

Instruction on the map is at best a poor substitute for well planned field exercises where persons and things are real. The problems in this book may serve best as a guide to the preparation of field exercises or tactical walks. There is scarcely any incident so trivial that it does not teach a lesson.

Anyone who uses this book for self-instruction should pause when he reaches such a question as, "What do you do?" or "What do you think?"—then reread the situation until he understands it and finally frame in his own mind, if not on paper, the answer to the question put. Then, and not until then, he should read the solution and discussion which follow.

A beginner would do well to study the appropriate paragraphs of the Infantry Drill Regulations (I. D. R.) and Field Service Regulations (F. S. R.) before deciding upon his answer.

Company commanders who desire to use problems of this character for instruction on the map or on the ground can, with patience and practice, prepare their own problems quite readily. The essential thing is to dispose of one point at a time, and dispose of it thoroughly. A thorough understanding of Infantry Drill Regulations will be the reward of the officer who studies its paragraphs systematically in search of ideas for problems for his non-commissioned officers.

Battalion and regimental commanders who believe such problems are useful might require each of their officers to prepare one each month. The best of these problems could be furnished to the companies, and a file kept for future use. This applies to problems on the ground as well as on the map. Many an excellent problem, worked out near a military post or camp, has been lost to contemporary and future company commanders because of the lack of system and cooperation. In time of peace the military service is a school. A file of old problems (if they are good ones) is as new and useful to a new batch of non-commissioned officers as a standard work on algebra is to successive classes of schoolboys.

It is necessary to explain that it has been impracticable for the author to visit the Hunterstown region. The problems in this book are based upon the map which accompanies the book (Hunterstown sheet, R. F. 1/21120, of the Gettysburg-Antietam map, Army Service Schools) and not upon the ground itself. An inspection of the ground would probably suggest the wisdom of some minor changes.

A. W. B.

This introduction will not be repeated in the other serial volumes. The FIRST SIX problems are given in this volume.

THE FIRST PLATOON, COMPANY A

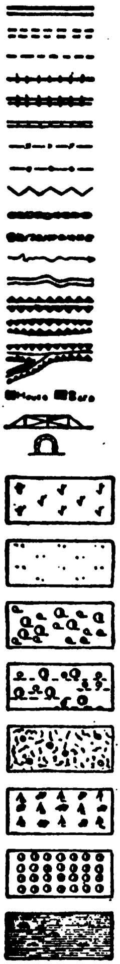
For convenience, an imaginary platoon has been organized and appears below in column or squads. The various situations are faced by this platoon or members of it. The numbers indicate second and third in command of squads.

	Hill (sgt.)	↑ MARCH DIRECTION			
1st Squad	Clark (corp.)	Brown (2)	Hagen	Pine (3)	1st. Lt. Allen
	Ames	Schafer	McGowan	Stone	In some problems the platoon leader is 1st Sgt. Holmes or Sgt. Hill
2d Squad	Koenig (corp.)	Quinn	Peterson (3)	Butler (2)	
	Walinski	Morgan	Carter	Pickett	
3d Squad	Adams (corp.)	Bush	Willis	Towney (2)	
	Bennett	Schmidt	Miller	Kelley (3)	
4th Squad	Nelson (corp.)	Schwartz	Humphrey (2)	Stevens (3)	
	Barry	Fasset	Wilson	Murphy	

Commanding officer, Company A: Capt. Rowen.
Commanding officer, First Battalion: Maj. Crosby.

CONVENTIONAL SIGNS FOR WAR GAME MAPS

Adopted by Army Service Schools.



Improved Roads
Unimproved Roads
Trails
Railroads, Single Track
" Double Track
" Urban or Suburban
Fences, Barbed Wire
" Smooth "
" Worm
" Stone
" Hedge
Streams under 15' wide
" over " "
Embankment
Cutting
Arroyo or Ditch

Buildings
Bridges
Stone Culverts

Corn

Cultivated Land

Trees without Underbrush

Woods with Underbrush

Brush

Pine Trees and Rocks

Orchard

Marsh

All open spaces are Grass Lands

LESSON 28

(Refer to map enclosed in back of book)

1. The U. S. A. Normal System of scales states that the contour interval for any map is found by dividing 60 by the number of inches on the scale which represents a mile on the ground. If this map is drawn to this system, what is the scale?
2. Construct a reading scale of miles for the map, assuming the scale to be as found in Problem 1.
3. Using the scale of Problem 2, find the air line distance in yards from Alonzo (A-2) to Bethel Church (A-3)
4. Using the scale of Problem 2, find the distance from Alonzo (A-2) to Bethel Church (A-3) by road, in miles.
5. If the length of the cornfield at Arnold (B-2) measured North and South is found to be 440 feet, what is the R. F. of the map, and how many inches to the mile?
6. If the width of the orchard at Logan (B-1) is 110 yards, how far is it in miles, by road, from the black house at Logan (B-1) to the black house at Mason (B-1)?
7. A column of infantry is seen marching south from Bethel Church (A-3), and covers the road from the crossroads at Bethel Church (A-3) to the railroad. How large a unit is marching, if the road space for a company in column is 50 yards?
8. What does the number 263, southwest of Bohman (B-1) represent?
9. Is the black house at Huston (A-2) visible from the black house at Riverview (A-2)?
10. Is the stone house at Brentano (B-4) visible from the stone house at Marsans (B-4). If so, what range would be given to infantry firing from Marsans (B-4), if the scale of the map is 24″ to the mile?

LESSON 29

PROBLEMS

FIRST PROBLEM

An Advance Guard Point

A-1	**A-2**	**A-3**	**A-4**
B-1	**B-2**	**B-3**	**B-4**

EXPLANATION

631. "The formation of the advance guard must be such that the enemy will be met first by a patrol, then in turn by one or more larger detachments, each capable of holding the enemy until the next in rear has time to deploy before coming under effective fire." (I. D. 642.)

The "patrol" which leads the way is called the "point." It is followed by the advance party, support, and reserve, in the order named. These parts combined make up the advance guard. The advance guard is followed by the main body.

Sometimes an advance guard is so small that it will have no reserve. It even may be so small that it will be divided into point and advance party only. Finally, if the whole column on the road is very small, for example a platoon, the advance guard may be only a point, but always there is an advance guard and a main body if the column is marching toward the enemy; and the advance guard always has a point, although that may be all that it does have.

The commander of the point is under the orders of the advance party commander.

Sometimes an advance guard has two points, one being mounted (cavalry or mounted orderlies) and riding far in advance of the other point. To avoid confusion we call one the "mounted point"; the other the "infantry point."

SITUATION 1

632. Your battalion camped last night in the meadow 250 yards south of Partin (B-4) in friendly country. The battalion has a cossack post at Marsans (B-4) and at Partin (B-4). It is early fall and the corn is not cut.

At 7:30 o'clock this morning your battalion formed, ready to march. Your captain ordered the pieces loaded, assembled the officers and non-commissioned officers opposite the center of the company, and gave them the following verbal order:

> A red Cavalry squadron was wrecking the railroad west of C. Langford (A-1) yesterday. C. Langford (A-1) is about 6 miles northwest of here. There are no blue troops in our vicinity. Our battalion is going to march to a place called Padreno (A-2), about 4 miles northwest of here, to pick up some wagons and haul back to this place a lot of forage and flour that the inhabitants have collected for us at the mill. This company will be the advance guard. The main body, which is the rest of the battalion, follows at 500 yards. The First and Second Platoons will form the advance party. Here is a map for you. Take that road [pointing to the map and to the road leading to Brentano (B-4), Muro (B-3) and Bethel Church (A-3)]. March at once. The Third and Fourth Platoons will be the support and will follow the advance party at 300 yards. I shall be with the support. Posts.

Lieutenant Allen summoned the non-commissioned officers of the First and Second Platoons and gave the following verbal orders:

> Sergeant Hill, take 4 men of the first squad and march northwest on that road [pointing to the road past Partin (B-4) and Brentano (B-4)] as the point. Precede the advance party by about 200 yards. At all crossroads and roadforks flash me W, W, which will mean "which way," and I shall signal the direction. The rest of the platoon will be with the advance party. I shall be with it. Start at once.

You are Sergeant Hill, platoon guide of the First Platoon. What do you do up to the time that the point takes up the march on the road?

> Note: Before reading what appears below, study your problem and solve it as explained on page 297. Observe the same rule hereafter whenever at the end of the statement of a "situation" you are asked: "What do you do?" or: "What do you think?" The question, "What do you do?" will be asked frequently. The answer to it should include all orders, exactly as you would give them in the field.

Sergeant Hill's Solution

I call out:

> Rear rank of the first squad follow me,

and I marched through the clump of trees and across the field directly toward Partin (B-4).

First I make sure that the 4 men follow me, then I call them alongside and while crossing the field I tell them what they ought to know about the situation, which is as follows:

> The battalion is going to Padreno (A-2), which is about 4 miles northwest of here. There are no blue troops in that direction but we may meet red Cavalry most likely from the west. We are the point. We must keep 200 yards ahead of the advance party. The lieutenant commands the advance party. He has a map and will signal to us which road to take when we come to crossroads or roadforks. Stone is next in command. Any questions?

I will answer the questions and add whatever is necessary to make the men understand their duties more clearly.

On reaching the road I direct:

> McGowan, along the left of road: Stone, along the right. Move out. I'll follow you at 10 paces. Schafer and Ames, follow me at 10 paces. Schafer, along the left of the road: Ames, along the right. Ames, you watch to the rear for signals.

Discussion

Inasmuch as the battalion is ready to march, its actual start depends upon how soon your point marches out. In special cases a point may be told to march out at an increased gait or even at double time, but ordinarily there is no occasion for doing this. You should, however, lose as little time as possible in starting out. It is not necessary to give your instructions before marching. You can utilize the first minute or two for that purpose, and in the present problem you can safely go bunched as far as the road: then take up a more scattered formation. You will remember that there is a cossack post in the woods at Partin (B-4) and there is little to be feared until you pass that post.

The lieutenant let you choose your four men from the First Squad; but since the duties of the point, aside from the duties of the leader, are very simple, every requirement is answered by merely taking the rear rank.

Whenever you take a patrol or detachment out for some special task, you should make use of the first opportunity to explain to your men exactly what the conditions are and what you are expected to do. For your guidance in these problems it is suggested that you study carefully the information and instructions given to subordinates in the solutions, and reason out the purpose of each sentence. Also determine, if you can, whether, in your opinion, anything of importance has been omitted.

You may prefer to tell your men that the company is the advance guard; that Lieutenant Allen and the First and Second Platoons are the advance party; that the other platoons are the support and follow the advance party at 300 yards, but all this is not necessary. The essential things are: Your command is the point; it must keep 200 yards ahead of the advance party; and Lieutenant Allen is your immediate commander.

The advance guard point is a patrol, but its route is exactly defined and it cannot march with the caution that is usually observed by a patrol. It is compelled to use the road. At the same time it should conceal its advance as much as possible. For this reason we sent McGowan and Stone abreast of each other along the sides of the road, where they may take advantage of trees, ditches, or other road features, and avoid the middle of the road. Naturally, McGowan would observe the country to the front and left and Stone the country to the front and right. You follow at 10 paces, but to one side of the road in order not to attract attention from a distance.

The troops in rear are compelled to expose themselves by marching in the middle of the road, but the object of the point is to see the road and country in front and flank before any enemy that might be there sees the point. This is possible less often than it is impossible, but the attempt must be made. Also, by using this formation, the patrol is a less definite target in case it draws fire.

One member of the point should always be charged with the duty of watching the advance party for signals. You will be too much interested in the country in front and to the flanks to do so.

SITUATION 2

633. You have reached the bridge northwest of Partin (B-4) and you notice that the cossack posts were drawn in as you proceeded on your march.

Mark on the map in pencil (or on tracing paper) the location of the different parts of the battalion, assuming that the battalion marched as ordered, but disregarding any patrols that may be out. Connecting files every 100 yards.

The field train is not with the battalion.

Sergeant Hill's Solution

I measure distances from the bridge. The point is at the bridge. It can be represented by a dot (though there may be 20 yards between the leading and rear men of the point).

The head of the advance party is at the junction of the road and east and west hedge just beyond Partin (B-4) 200 yards in rear of the point.

As the company contains 200 men each platoon will be 50 men and will occupy 25 yards of road space (allowing 2 men per yard), hence the head of the support will be 350 yards in rear of the advance party or just about to take the bend on the Partin (B-4) road.

The main body will not yet have left camp. The main body will be 550 yards in rear of the head of the support.

The 4 wagons which constitute the combat train (3 ammunition wagons and 1 ambulance) are also in camp; allowing each 20 yards of road space they will consume about 80 yards on the road.

There will be 1 connecting file between the point and advance party, 2 between the advance party and support, and 4 between the support and the main body.

Discussion

Of course, you will never be required to make such calculations and measurements in the field, but the problem is given now for several good reasons:

First, you should have a fair idea of the make-up of an advance guard and how it looks on the road.

Second, this problem and those which follow must be studied on the map, and it will be necessary to learn to measure distances on the map instead of estimating them by eye, as you usually do in the field.

Third, you are obliged to apply a rule for determining the road space occupied by infantry and wagons. The main body (3 companies) was 300 yards long. The 3 companies have about 600 men (200 men in a company). The easiest rule to remember is that when infantry is marching in column of squads 2 men equal one yard of road space. Therefore, 600 men will make a column 300 yards long; that is, they will occupy 300 yards of road space. At drill the distance is less, but on the march the rule given here is accurate enough. Artillery carriages (guns or cassions), wagons, ambulances, and auto trucks each occupy about 20 yards of road space. To know this rule assists you in estimating numbers. Suppose someone shows you a sack of beans and asks you how many beans are in the bag. Of course you cannot begin to guess. But if you are told that 800 beans weigh one pound you will lift the sack, guess the weight, and multiply the number of pounds by 800. Now, if you are sent out as a patrol leader and reach a hill from which you see a long column of infantry followed by a long column of wagons, you cannot count them, of course. But you are trained in estimating distances. Suppose you estimate the infantry column to be 1000 yards long and the wagon column 500 yards long. Now you can safely report that you have seen about 2000 infantry followed by about 25 wagons. Or suppose you had a good map and could locate on it the position of the head and tail of the column. By using the map scale and a little arithmetic you could make a very accurate estimate. But a chance to this method occurs less often.

SITUATION 3

634. Where will the point be when the rear of the last company of the main body is at the roadforks just northwest of its camping place, that is, just out of the meadow?

Sergeant Hill measures forward 550 yards, plus 250, plus 200, and sees that the point is advancing up the hill about opposite the two trees on the Brentano (B-4)-Muro (B-3) road.

What did you do when you reached the roadfork at Brentano (B-4)?

I signalled back W, W, and received the signal L, meaning left.

As you approached the first house on your left beyond Partin (B-4) you notice that McGowan slowed down to about a mile and a half gait and looked anxiously toward the orchard and woods about the house. Stone followed suit.

What did you do?

Sergeant Hill's Solution

I called out:

What is the matter McGowan, did you see anything?

He replied:

Not a thing; but there might be somebody in the orchard.

What did you do then?

I called out to McGowan:

March along a little better than three miles an hour until you see something real.

Discussion

The point must precede the advance party by 200 yards. The advance party and all the troops in rear of it must march at a steady gait unless prevented by the enemy. This means that the point must also march at a steady gait. It cannot approach woods or suspicious places as cautiously as a reconnaissance patrol might do. At maneuvers and field exercises we frequently see the marching rate of the main body reduced to 2 miles or less for no better reason than that the point and other parts of the advance guard are unnecessarily cautious. The point must move at a normal marching rate until the enemy prevents it from doing so. The point must take chances when it approaches woods or houses such as caused McGowan to slow down. When the enemy is actually seen, or when the point is fired upon, the situation is quite different, but we shall have more to say about that later.

SITUATION 4

635. When the point reaches the road turn-in at Muro (B-3) McGowan says:

Sergeant, we could get a fine view to the north from the roof of that house. Shall I go there?

What do you do?

Sergeant Hill answers:

No.

Discussion

You might be tempted to tell McGowan to mind his own business, but that is not necessary. Never squelch a man for offering a suggestion which, from his standpoint, seems reasonable, unless he becomes a nuisance.

No doubt a good view to the north can be obtained in the manner suggested by McGowan, but before the observer returns to the road the advance party will reach the house. If the point were to adopt a system of sending a man to every favorable point of observation, there would soon be no point left unless the advance party, and therefore the whole column, halted while the point made use of these places. This is out of the question, of course. It often happens that a member of the point can be directed to march so as to get a better view. For example, if the road passes through a long, deep cut, one man can be sent along the top of the cut. The thing to bear in mind is that no man should be sent on such an errand if he will be unable to get forward at ordinary marching rate.

It is the duty of the advance party or of the support to send men off the road when it becomes necessary or desirable to do so for reconnaissance or observation.

SITUATION 5

636. The point arrived at the roadforks just west of Muro (B-3) and you saw a blue patrol along the Arnold (B-2)-Bethel Church (A-3) road marching north and now 700 yards west of you.

A moment later you arrive at the roadfork. McGowan points to the west, down the slope. Among the trees of the gully southwest of you about 10 cavalrymen are hurriedly mounting up. About half of them are already riding west deeper into the woods. They are reds without a doubt.

What do you do?

Sergeant Hill's Solution

I extend my arms horizontally (the signal "as Skirmishers, march") and call out,

Target, cavalry in the orchard, clip fire, faster.

Then I face Lieutenant Allen and semaphore

Ten men. Cavalry.

Then I join the men who are firing, in order to observe the enemy, the surrounding country, and the effect of our fire.

Discussion

By the time you have done all that the solution includes, it is likely that the patrol will have disappeared and it will be time for you to do something else. What you will do next depends upon the result of your observation.

The Drill Regulations give you short and clear commands and signals. They constitute a special language which all men learn. If you were to form the bad habit of breaking out into ordinary conversation in a situation like the present one, it is not probable that all of your men would know exactly what you wanted. The non-commissioned officer who is so trained in the application of Drill Regulations commands and signals that he uses them instinctively and correctly will get far better results in any emergency. Furthermore, he will give the impression among his men that he understands his business, and this in itself is a very important matter.

In future problems we shall have occasion to apply Drill Regulations, commands and signals. We may as well indicate now, in the beginning, that these commands and signals can frequently be used to indicate to your men exactly what you want done.

When you shout ''target'' and pause for a moment, as you naturally will, your men will instinctively look toward you and see you signal ''as skirmishers, march.'' The target itself is so apparent to any one who glances in the direction in which you are looking that it would hardly be necessary to describe it. An unmistakable target within 500 yards, as in this case, requires no announcement of range. The command ''clip fire'' without announcement of range, denotes battle sight. Battle sight is even more suitable against cavalry than against infantry, on account of the height of the target. It is entirely proper to command ''faster,'' even before firing begins. It indicates that when fire is opened you desire a rate of fire faster than the normal.

We recommend that you study the commands and signals used in future problems and determine for yourself whether they answer every purpose and would be perfectly clear to trained troops.

You might have signalled to Lieutenant Allen by holding your rifle horizontally over your head. This signal, which has been used many years, indicates ''enemy in sight in small numbers.'' The semaphore message ''ten men, cavalry,'' can be flashed almost as quickly and it is more definite. While on this subject of semaphore signalling, it is well to add that officers and non-commissioned officers and many privates should be able to semaphore. It is very simple, rapid, and easily learned. If half of the company is proficient, the other half will soon be able to signal fairly well.

There is no doubt as to the propriety of opening fire on the Reds. Their hurried movements would indicate that their halt in the woods had been interrupted by the warning of their lookout. They know that Blue troops are approaching, but in order to prevent them from getting too much information of our own forces it is best to shoot them up while you have a chance, and fill them with a strong desire to get away.

SITUATION 6

637. The red patrol disappeared and was screened from view by the woods before your men exhausted the first clip. You immediately directed your point to resume its march to the northwest at an increased gait since the advance party had now closed up to within 50 yards. In the meantime you shouted to Lieutenant Allen,

Reds have gone west through the orchard.

When the point had advanced to within 100 yards of the roadfork at the northern edge of B-3, a lively fire opens from the woods directly west of you and across the stream. The fire is to your left flank and probably is directed at the advance party. You judge that there may be either a squad firing rapidly or a platoon firing slowly. A glance back up the road shows you that the advance party has started to deploy.

What do you do?

Sergeant Hill's Solution

I shout,

Off the road to the left and into that hollow.

(Pointing to the shallow hollow at the edge of the trees just off the left of the road.)

I scatter my men in among the trees at the east edge of the field and return the fire. I shall wait there until the advance party arrives.

Discussion

It is correct for you to get off the road promptly, but by turning to your left you have brought yourself into the line of fire on the advance party. It would have been better for you to have turned into the cornfield and headed directly toward the railroad bridge so that you could have secured a crossing over Blue River (A-3) and have prevented the red forces from arriving there first. Your point has not been fired upon and is free to move. A quick motion off the road may draw a few shots from the enemy but it will probably amount to nothing. The point can help the column most by placing itself in a position to get information, to secure such crossing places as the bridge over Blue River (A-3) and at the same time place itself on the flank of the enemy.

At the road turn-in toward Bacon (A-3) there is a stone fence; protected by this stone fence your point, small as it is, would have been in an excellent position to have defended the bridge. This leaves the advance party free to deploy to its left through the trees and down the gully, driving off the hostile red forces.

If you secure passage across Blue River (A-3) it is evident these red forces must retreat westward or southwestward. The hostile force is probably small and will stand for a short time only. It may be the same cavalry party which you drove out of the woods. In this case its intention probably is to delay our column or make it show its strength. The attitude of the advance guard in such case is to act vigorously and enable the column to march with as little delay as possible.

SITUATION 7

638. The advance party deployed to its left and at the edge of the woods delivered a hot fire to the red forces who immediately retired westward. The advance party continued westward to the Arnold (B-2)-Bethel Church (A-3) road and into the woods to the left of this road. As it did so it detached a squad to join the point and directed you, with these reinforcements, to make a quick dash through the cornfield for the railroad crossing of the Bethel Church (A-3)-Arnold (B-2) road. Nothing more has been seen of the enemy and the advance party reforms quickly on the road to take up its march.

You have arrived at the railroad crossing of the road.

What do you do?

Sergeant Hill's Solution

I detail 2 men to hastily examine the bridge over Blue River (A-3) and at the same time I advance across the bridge with my point leaving the squad which was sent to me on the south end of the bridge to await the arrival of the advance party and hold the bridge. At an increased gait, in order to get my proper distance, I continue my advance toward Bethel Church (A-3).

SITUATION 8

When you have gotten about 150 yards beyond the bridge you notice that the support and the main body have halted.
What do you do?

Sergeant Hill's Solution

I halt my point, but as there is an important crossroad just ahead of me I direct 2 men to proceed to these crossroads and maintain a watch in all directions.

Discussion

The column has apparently halted for a rest. When a column halts the point becomes a "march outpost." If necessary, it shifts its position so as to get the best view of the roads and country to the front and flank. The point should not move a great distance for this purpose. How far is a matter of judgment. Over 200 yards to the front or 100 yards to the flank or 100 yards to the rear would probably not be too far. In the present case an advance of a little over 100 yards would bring the point to the important crossroads at Bethel Church (A-3) and it would be a grave error for the point to fail to continue its advance to these crossroads examining the grounds and buildings at Bethel Church (A-3).

LESSON 30

SECOND PROBLEM

An Advance Guard Connecting File

A-1	A-2	A-3	A-4
B-1	B-2	B-3	B-4

EXPLANATION

639. "When the distance between parts of the advance guard or the nature of the country is such as to make direct communication difficult, connecting files march between the subdivisions to keep up communication. Each element of the column sends the necessary connecting files to its front." (I. D. R. 645.)

Usually, a connecting file consists of two men, but special conditions may require the use of one man, or more than two men. The men of a connecting file march together.

The distance between connecting files, or between a connecting file and the subdivision nearest to it, varies according to the situation. Naturally, the distance would be greatest in flat, open country, in broad daylight, and in this case may be as much as 200 yards. The distance would be least on a very dark night. In the latter case the connecting files may be so close as to form a single file at about 5 yards distance.

In daylight, and in case of doubt, 100 yards may be considered a satisfactory average. This distance has two advantages: First, men are trained to measure distances by eye in units of 100 yards. Second, the prescribed distance between subdivisions is easily maintained by sending connecting files 100 yards apart; thus, when 600 yards distance is ordered, the head of the subdivision which is to march with 600 yards distance marches 100 yards behind its fifth connecting file.

SITUATION 1

640. You are Private Dixon of Company B. Your battalion is on the march from Partin (B-4) to Padreno (A-2) along the Partin (B-4)-Brentano (B-4)-Muro (B-3)-Bethel Church (A-3) road. At 7:30 o'clock this morning your battalion formed ready to march. Your Captain

ordered the pieces loaded, assembled the officers and non-commissioned officers opposite the center of the company and gave them the following verbal order loud enough for the company to hear it:

> Red Cavalry was wrecking the railroad west of C. Langford (A-1) yesterday. C. Langford (A-1) is about 5 miles northwest of here. Our battalion is going to march about 4 miles northwest of here to Padreno (A-2) to obtain forage and flour. Company A will be the advance guard at 500 yards. Posts.

You saw Company A march out with point, advance party and support. It marched northwest on the Partin (B-4) Brentano (B-4) road. The head of the main body consisting of three companies, B (your company), C, & D, is at the roadfork at Partin (B-4). The rear of the support has just crossed the bridge nearly 500 yards northwest of Partin (B-4). The head of the advance party is about 100 yards from the roadfork at Brentano (B-4) and the point has just crossed the stream southwest of Brentano (B-4). When the support had marched about 50 yards on the road from your company, your Captain said to Private Scott of your squad,

> Scott, take Hanson with you and follow the advance guard at 100 yards as a connecting file.

A moment later, when Scott had marched about 50 yards, the Captain said to you,

> Dixon, take Smither with you and follow Scott at 100 yards as a connecting file.

You soon note that the head of the main body is just turning the corner at Partin (B-4). You also notice there are two connecting files between you and your company. You also notice that the Major is riding at the tail of the advance guard. With this initial order of march your battalion proceeds along the Partin (B-4)-Brentano (B-4)-Muro (B-3)-Bethel Church (A-3) road as in the first problem.

After marching about a mile and a half you turn the corner to your right at the roadforks at the northern edge of B-3 and now when you are about 20 yards beyond the corner you see that the advance guard support has halted on the bridge and Scott's connecting file has halted at the corner of the stone fence; on account of the cornfield you cannot see the connecting file in rear of you.

What do you do?

Private Dixon's Solution

I halt and say to Smither,

> Go back to the roadfork and stand where the next connecting file can see you.

Discussion

Imagine that the advance guard support is dragging behind it a string 100 yards long. Scott's place is at the end of that string. Imagine also that Scott drags a string 100 yards long. Your place is at the end of that string. You also drag an imaginary string at the end of which the next connecting file is supposed to be. Finally, the captain of your company is ordinarily at the end of the string of the last connecting file, but he may close up or drop back for reasons of his own. You have no such discretion. All you can do is to shift slightly, if necessary, in order to be seen by the next connecting file in front, or in order to be seen by the next connecting file in rear. For this reason you sent Smither back to the roadfork. If the distance to the roadfork had been

40 or 50 yards or more, there would have been no object in sending him. The next connecting file would have been there at the same time, or sooner, and would have halted when it saw you had done so.

SITUATION 2

641. When Smither reached the roadfork, he signalled, "halt," to the next connecting file.

What do you do?

Private Dixon's Solution

I call to Smither:

Don't signal, just stand there.

Discussion

Smither does not know his business and exceeded his instructions. If the signal "Halt" is transmitted back to your captain, he will assume that the major has ordered "Halt." You received no such signal and hence should not permit it to be sent back. If your connecting file merely halts, it is sufficient notice that your imaginary string has halted. Each subdivision of the advance guard tries to march steadily, but sometimes receives short, unavoidable checks. The officer in command of the next subdivision in rear, or of the main body, may wish to avoid numerous short halts, which irritate the men and do no good, and to adjust the distance by a slower gait; or he may wish to close up a part of the distance in order to reach a shady place in the road, or in order to get off a conspicuous hill. If he receives the signal "Halt," and knows the major is in front, he must halt practically where he is. Bear in mind, therefore, that signals are to be transmitted only when ordered by proper authority, or when unmistakably given to you by the next connecting file in front or rear of you.

SITUATION 3

642. You reach a point about 50 yards north of the bridge over Blue River (A-3) when fire opens to the northwest of you. The advance guard support has halted near the summit of the low ridge at Bethel Church (A-3). You are then halted on the up slope of that ridge. A minute later Scott signals,

Assemble.

What do you do?

Private Dixon's Solution

I signal,

Assemble,

to the next connecting file in rear, and continue the signal until I see that the connecting file repeats the signal.

Discussion

You have, of course, no reason to question the authority for Scott's signal. The main body is under cover from the fire which you have heard, and can advance. The major is ahead and evidently wants the main body to close up on him; that is, assemble on him. The important thing for you to do is to continue the signal until you are sure that the next connecting file in rear has passed it along.

SITUATION 4

643. You are still halted just north of the bridge. The advance guard support has deployed at Bethel Church (A-3) facing northwest but has not yet advanced. Scott is still halted. The main body has advanced a little more than 100 yards and in the meanwhile has picked up the last connecting file. There is now only one connecting file between you and the main body and that connecting file is now closing up on you and keeping about 100 yards ahead of the main body.

What do you do?

Private Dixon's Solution

I stand fast.

Discussion

The connecting file in rear of you made a mistake. In our present case it will make little or no difference. You should remember, however, that it is important for each commander of a subdivision of a column to know whether the next subdivision in front is advancing or has halted. Generally, this can be determined only by observing the connecting files. In thick country, and on a winding road, where only one connecting file is visible, that connecting file will deceive the commander if it takes its distance from the rear; that is, if it starts to wind up its hundred yards of string, instead of halting at the end of it.

In a night march the situation is more difficult. The advance guard and all connecting files must guide on the main body. At the same time, the main body must be warned, quietly, if it is jamming up on the advance guard. A connecting file must therefore keep its distance ahead of the connecting file or body of troops next in rear, and at the same time give warning if the maintenance of this distance results in jamming. For this reason, the proper distance at night between connecting files is the maximum distance at which a man can be seen in outline.

LESSON 31

THIRD PROBLEM

An Advance Guard Flank Patrol

A-1	A-2	A-3	A-4
B-1	B-2	B-3	B-4

EXPLANATION

644. "To afford protection to an infantry column, the country must be observed on each side of the road as far as the terrain affords positions for effective rifle fire upon the column. If the country that it is necessary to observe be open to view from the road, reconnaissance is not necessary." (I. D. R. 648.)

"Where the country is generally open to view, but localities in it might conceal an enemy of some size, reconnaissance is necessary. Where the road is exposed to fire and the view is restricted, a patrol should be sent to examine the country in the direction from which danger threatens. The object may be accomplished by sending patrols to observe from prominent points. When the ground permits and the necessity exists, patrols may be sent to march abreast of the column at distances which permit them to see important features not visible from the road." (I. D. R. 650.)

Infantry on the march must protect itself from being surprised or being fired upon, not only from the front, but also from the right or left. To guard against the latter, we send our flank patrols when necessary. It often happens that, from the road itself, we can see all the ground so far to the right or left that nothing more than small hostile patrols could be within easy rifle-shot ot our column without being seen from the road. In such cases we do not bother to send out flank patrols, because a hostile patrol will hardly fire on a company or a battalion. If the distance is great, they could not hit anything. If the distance is short, it is not healthy to open fire and generally nothing is gained by doing so. Only poorly instructed patrols at maneuvers do such things. But from time to time it is necessary to send out flank patrols towards woods, houses, or hills in order to find out whether the enemy is there with enough men to be dangerous. These patrols are sent by the advance guard, generally by the advance party if it is strong enough. In this way the information can be obtained before the troops in rear of the advance party come within easy rifle-shot of the ground examined by the patrol. Of course, mounted men are generally best for such patrols; but if there are none on hand, or if the ground is difficult, we must use infantry.

The patrol leader is told when to leave the column, where to go, and about where to come back on the road on which the column is marching. When the patrol gets back on this road, the leader will usually find that his company is ahead of him. He is expected to overtake the company if possible, but without double timing. If the patrol has lost considerable distance (say more than half a mile), the patrol leader should report to the first battalion or company commander that he meets.

SITUATION 1

645. The situation is the same as in the first problem to include Lt. Allen's order, page 297, (A Red Cavalry squadron was wrecking the railroad west of C. Langford (A-1), etc.)

You are Corporal Clark, First Squad, at the head of the advance party.

Your rear rank is the point, and Pine and Hagen are ahead as connecting file. You are on the main road 100 yards southeast of the turn-in road at Brentano (B-4). A moment ago Lt. Allen passed the word back that farmers have telephoned that Red Cavalry is active again this morning south and west of Padreno (A-2). At this point Lt. Allen says to you,

> Corporal, when we reach the roadfork in front of us take three men and patrol up through the woods of that gully just to the right of our route of march using road turns to the northwest. From the woods you go southwest over the hill to the right of the Muro (B-3) farm house which you will notice when you get on the crest of the hill. There is the road I mean (pointing to the Brentano (B-4)-Muro (B-3) road). Keep abreast of the advance party.

(1) What do you think?

(2) What do you do up to the time your patrol starts out with patrol formation?

Corporal Clark's Solution

(1) I am to cross the little stream, go up through the clump of woods over that hill and head toward the Muro (B-3) farm house, keeping abreast of the Lieutenant.

Approaching the woods I want someone in front of me and someone behind. Better have two men in front; they will have more confidence. We shall be on a low ridge as soon as we emerge from the woods and I shall have no trouble seeing the advance party, but the first thing to do is to cut across the field over the fences and organize just before I cross the creek.

(2) At the roadfork I call out,

> Brown, Quinn and Peterson, follow me.

I take them across the field through the fence and walk toward the creek, meantime telling the men, We are going to patrol those woods, then go southwest parallel to the main road, up over that hill and to our right of a farm house which we shall see as we get over the hill. We have to keep abreast of the advance party. Brown, you go ahead now to the nearest point of the woods. Quinn, 25 yards to the right of Brown. I will follow Quinn at 50 yards, Peterson 50 yards behind me.

We take up this formation and march. At the same time we watch the march of the advance party.

Discussion

When you are given a thing to do the logical way to go about it is as follows:

1. Be sure you understand what you are ordered to do.
2. Determine the best way to do it.
3. Do it.

Some times you will have ample time to follow out this idea. Sometimes, however, you will have barely time to ''do it'' and must trust to your instinct to pull you through.

In the present problem your first thought should be to fix firmly in your mind the instructions given you by Lieut. Allen. You have time before reaching the crossroads. He planned your route with the assistance of his map, but you will have to go without a map. You can not see what lies beyond the woods.

You know only that southwest of the far end of the woods is a farm house to the right of the route of march of the column and that you are expecting to keep that farm house to your left, at the same time keeping abreast of the advance party. Lieutenant Allen's directions look simple enough when you examine a perfect map; but if you were on the ground, you would realize the importance of repeating aloud, or at least to yourself, the route given you. If there is any doubt in your mind, you should ask Lieutenant Allen to explain it away. If Lieutenant Allen did not have a good map, he would be able to see beyond the first woods. In that case he would probably send your patrol to the first woods only. Then later, when the advance party reached the north end of the woods, he would have to send another patrol through the orchard. But he has a map and the advance party is small, so he trusts to your intelligence to make the patrolling easier.

You will observe that your patrol left the column without any inspection, and marked without trying to use cover. Also, Lieutenant Allen did not say what the patrol was to look for. At first glance you would think that this is contrary to Infantry Drill Regulations (par. 609). But there is a difference between your advance guard flank patrol and the patrols that par. 609 has specially in mind. Your flank patrol must go out at once. The men are already in marching trim and pieces are loaded. The patrol will not be out of sight of the column except perhaps for a few minutes at a time.

Furthermore, if a flank patrol is required to advance under cover and the column keeps up the average rate of march, the patrol will usually fail to get anywhere in time to be of use. On the other hand, if the column slows up to let patrols advance cautiously under cover, the column will not get anywhere. Of course, you will use whatever cover you find, but the main thing is to get over your ground fast enough to give the column on the road no excuse for slowing up.

The other point that we raised was, why did not Lieutenant Allen tell you what to look for? If you are sent on reconnaissance, this would be very important, but the purpose of an advance guard flank patrol is always the same. The purpose is to give warning of an enemy, if seen, in time to save the column from being surprised, and incidentally to drive off any hostile patrols that have a chance to get information of our column. You should understand this so well that it should not be necessary for Lieutenant Allen to tell you each time that you are sent out. How to get this information and how to transmit it to the column will be explained later.

At the roadfork you commanded;

Brown, Quinn, Peterson, follow me.

and let them through the fence. That is short, complete, unmistakable, and businesslike.

Three of your fellows come along with me

is the way we frequently hear it. It is wrong.

Pick your men and name them. Under Lieut. Allen's orders to "take three men," you would ordinarily take them from your own squad if you had that many left. You would not in that case take any from other squads except for excellent reasons, and, in any event, only after telling the lieutenant that you wished to do so.

At first you are so close to the advance party that you can safely advance bunched for 75 or 100 yards, and while marching thus you may give your information and orders.

Your men have heard Lieut. Allen give you the route. Nevertheless, you will repeat it to them as a matter of habit and precaution. The patrol may become scattered, or temporarily separated, and you should make sure that each man knows what ground the patrol is to cover.

More often you will have a single place to go to, instead of a long parallel route, as in this case. But even then you should tell your own men, for example,

We are going to that hill to take a look at the country on the other side, then come back to the column.

The formation that we adopted sends two men toward the woods. They are 25 yards apart. Peterson is in the rear for the special purpose of keeping the advance guard in sight so as to transmit signals. You are in the middle where you can see the whole patrol and run both ends of it. Bear in mind four things:

(*a*) Some one must march so as to be able to explore the ground assigned to you.

(*b*) Some one must march so as to keep in touch with the advance guard.

(*c*) You must place yourself where you can handle the patrol and its movements.

(*d*) The patrol must make progress in the right direction.

Any formation (diamond, single file, a sort of skirmish line, etc.) which will accomplish these four things is correct, but as a matter of safety you would never march bunched.

There are times, of course, when you can not help losing sight of the advance guard temporarily.

Brown is second in command in your squad. Otherwise you would name a second in command.

SITUATION 2

646. Brown and Quinn have just reached the east corner of the woods. Peterson has veered to the south to keep the advance party in sight and is now at the wire fence as it enters the woods. You cannot see the advance party but you assume it has just crossed the creek. You assume that in the woods in front of you you will be able to see a man 75 yards away.

What do you do?

Corporal Clark's Solution

I signal,

As skirmishers, guide left, march,

and shout,

Peterson, left edge of woods; Brown center; Quinn right edge,

and I follow about 50 yards in rear of Brown. I call to Peterson,

Peterson, keep the advance party in sight.

Discussion

The Infantry Drill Regulations recommend that a patrol advance in a thin skirmish line when penetrating woods. (Par. 612.) You are not ready yet, however, to go into the woods. It is best to make sure of the direction of march and location of the advance party. Meantime the men can be placed so as to be ready to go ahead in a thin skirmish line when you decide to advance.

We have here a practical application of the use of the Drill Regulations signals in connection with orders. It is doubtful if you could devise a shorter and clearer method of separating Brown and Quinn by a hundred yards. This is a trifling detail perhaps, but you should always look for the shortest and clearest way of getting a thing done.

SITUATION 3

647. The point is moving forward up the road.

What do you do?

Corporal Clark's Solution

I signal,

Forward, march,

and move on up through the woods.

Discussion

You are now sure that you know the route of the advance party. By starting now you are somewhat in advance of the advance party. This has two advantages. First, you can give warning more quickly if you encounter anything, and second, you will overcome in part the delay which the underbrush will cause and thus be more nearly abreast of the advance party when you get through the woods.

The patrol will naturally guide on you, and at first will have to shift about to get the intervals that you ordered. Your interval between men might be greater than 50 yards, if you can see 75 yards as you estimated, but it is better to be safe and keep the patrol under control.

You are going to lose sight of the column temporarily, but this cannot be avoided. If you left a man in position to see the column, he would not be in a position to be seen by you, and therefore he would be practically useless.

SITUATION 4

648. You emerge from the woods into the meadowland.
What do you do?

Corporal Clark's Solution

I indicate a partial change of direction to the left so as to parallel the road and I call out to Peterson,

You and Brown to the front; Quinn to my right,

indicating the direction so as to approach the farm with Peterson and Brown in the rear and Quinn to my right flank.

Discussion

As you emerge from the woods the skirmish line formation is not suitable for crossing the open fields so the other formation is taken.

SITUATION 5

649. As you approach the Muro (B-3) farm what do you do?

Corporal Clark's Solution

My instructions were to keep the farm on my left so I encircle it to the right, examining the orchard and buildings as I pass it.

Discussion

The point can see well into the orchard, that is why you are directed to keep the farm to your left, but it would be well for you to have sent one man up through the orchard and to the farm house.

SITUATION 6

650. When you have reached the farm buildings, you have received no further instructions after reaching the farm buildings.
What do you do?

Corporal Clark's Solution

I shall cause Peterson to go in front of me, Brown on my right flank and Quinn in rear of me at a distance of about 50 yards and shall march parallel to the road skirting the fences.

Discussion

Your formation is correct up to the point where you reach the cornfield to the right of the road on B-3.

SITUATION 7

651. You have just reached the little draw in the meadow and you see the cornfield ahead of you.

What do you do?

Corporal Clark's Solution

I call out,

> Peterson on the left; Brown center; Quinn to the right, and skirmishers at 50 yards,

and move through the cornfield in skirmish order.

Discussion

This will enable you to cover about half of the cornfield. By glancing down the rows it will be easy for you to determine whether or not any enemy is in this cornfield. It is not necessary for you to go through the entire field.

SITUATION 8

652. As you arrive at the far edge of the cornfield what do you do?

Corporal Clark's Solution

I reform the flank patrol in column formation and cross the meadow resuming a skirmish formation on reaching the next cornfield at the north edge of B-3.

Discussion

It would be better perhaps not to reform in column formation inasmuch as the distance between the cornfields is only about 200 yards and you might cross the meadow in a skirmish formation ready to enter the next cornfield.

SITUATION 9

653. As you emerge from the north edge of the cornfield near the railroad track you notice that you are ahead of your point. At the same time you notice a few mounted men of the red forces between the railroad cut and Blue River (S. W. Corner A-3).

What do you do?

Corporal Clark's Solution

I signal back,

> Enemy in sight,

with my rifle and then I open fire.

Discussion

No, that is not correct. It is unnecessary for you to signal "enemy in sight" because should you open fire quickly it would be perfectly evident that you had seen the enemy and your firing could be heard. Moreover you cannot signal through a cornfield.

SITUATION 10

654. Your men have opened fire from behind the stone hedge (south edge of A-3) and the mounted red forces have disappeared beyond the railroad cut.

What do you do?

Corporal Clark's Solution

I remain where I am until the advance party comes up because I have to join the advance party in order to cross the bridge.

Discussion

If you remain behind the stone hedge you will subject your men to a flank fire from the hills due west of you. It would be better for you to cross the railroad and remain under cover of the embankment south of the bridge. Although this places you ahead of the point it will see your movements and you will thus cover the crossing of the railroad bridge by the point. We will suppose you have done this.

SITUATION 11

655. Your men are on the east side of the road embankment between the bridge and the railroad facing westward and the point is approaching you. No more of the enemy has been seen.

What do you intend to do?

Corporal Clark's Solution

I shall hold my men there until the point crosses the bridge and follow them immediately, going off to the right flank again on crossing the river.

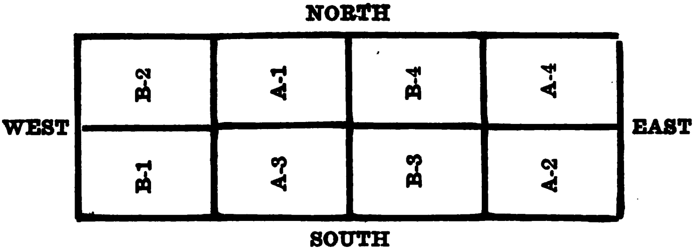
Discussion

That would be correct had you explored the tunnel and the woods to the northeast of the railroad bridge, but until you have found that these are not occupied by the enemy you do not dare to allow the point and the advance party to cross the bridge. You should have made a careful investigation of the tunnel and the tree-covered hill, for as soon as the point has advanced toward the bridge followed by the advance party these organizations can handle the small body of red forces which you saw which would leave you free to hurriedly investigate the hill on your right, this being the most important feature of terrain which you have encountered as a flank guard patrol.

LESSON 32

FOURTH PROBLEM

The Platoon as an Advance Party



EXPLANATION

656. "The advance guard commander is responsible for its formation and conduct. He should bear in mind that its purpose is to facilitate and protect the march of the main body. Its own security must be effected by proper dispositions and reconnaissance, not by timid or cautious advance. It must advance at normal gait and search aggressively for information of the enemy. Its action when the enemy attempts to block it with a large force depends upon the situation and plans of the commander of the troops." (I. D. R. 640.)

"The support sends forward an advance party. The advance party in turn sends a patrol, called a point, still farther to the front. * * *" (I. D. R. 645.)

"They facilitate the advance of the main body by promptly driving off small bodies of the enemy who seek to harass or delay it; by removing obstacles from the line of advance, by repairing roads, bridges, etc., thus enabling the main body to advance uninterruptedly in convenient marching formations.

"They protect the main body by preventing the enemy from firing into it when in close formation; by holding the enemy and enabling the main body to deploy before coming under effective fire; by preventing its size and condition from being observed by the enemy. * * *" (I. D. R. 636.)

The present problem is designed to illustrate how the advance party commander assists the advance guard in facilitating and protecting the march and in taking proper action when the enemy is met.

SITUATION 1.

657. A week ago we marched west with our division through Pedrino (A-2) and Benson (B-2). We are in the enemy's country. Our regiment was left back to guard the railroad over which our supplies come while the rest of the division went 10 miles west of Pedrino (A-2) and now confronts the enemy. Our battalion and a machine gun company is in Pedrino (A-2) while the rest of the regiment is scattered along the north and south line through Nadal (B-2) and Mason (B-1), the nearest detachment being Company E at Nadal (B-2).

At 9:00 o'clock this morning Companies A, B and C, and the machine gun company were hurriedly assembled and marched west out of town; Company A in the lead. You are 1st Sergeant Holmes, Company A. The captain, who is the only officer with the company, called the non-commissioned officers to the head of the company during the march and said:

> The enemy attacked Company E at Nadal (B-2) this morning. Our battalion leaves Company D in Pedrino (A-2). The rest of the battalion and the machine gun company are going to attack the enemy at Nadal (B-2). This company will be the advance guard. The main body will follow us at 600 yards. Sergeant Holmes, your platoon will be the advance party. The rest of the company will be the support and will follow you at 400 yards. I'll be with the support and will send out the flank patrols. Here is a map. Take this direct road to cross the roadforks south of Mura (B-3), then past Brentano (B-4) to C. Langford (A-1). When we reach the outguard the battalion will halt and the advance party will get its distances. Posts.

The battalion halts at the outguard where the road crosses Blue River east of Alonzo (A-2) and the Captain orders you,

> Ford the river and move forward due westward.

It is September and the corn is high. The pieces are loaded.

What do you do up to the time the advance party marches?

The First Sergeant's Solution

After receiving the captain's first order, and before reaching the outguard, I make sure that the non-commissioned officers of my platoon understand the situation as stated by the captain. On arrival at the outguard, I order,

> Sergeant Hill, take four men of the Second Squad forward on this road (past the cemetery). Precede the advance party by 250 yards. At the roadforks look to me for direction.

When Sergeant Hill has marched out, I order,

> Butler, take Quinn with you, and follow the point at 100 yards as connecting file.

While the point and connecting file are gaining distance, I inform the platoon as follows:

> Company E was attacked at Nadal (B-2) this morning. Our battalion left Company D at Pedrino (A-2). The rest of the battalion and the machine gun company are going to attack the enemy at Nadal (B-2). Our company is the advance guard and this platoon is the advance party.

When the connecting file has marched nearly 150 yards I command:

> As skirmishers, guide right, march; platoon column, march,

and order,

> Column of files each side of the road. Corporal Koenig, in rear to watch for signals. Peterson, join First Squad.

657 (contd.)

Discussion

You observe that the advance guard has no reserve. It would split up the company into too many parts if the advance guard, in this case, had a reserve. The company is therefore divided in the same manner that the support of an advance guard would be divided; that is, it has an advance party and a support proper. The point belongs to the advance party. You have the point, the connecting file, and the advance party proper, all under your command.

Your noncommissioned officers know the situation. During the minute or two that the platoon stands halted, it is well to inform your men briefly what the situation is.

Whenever possible you should give your men some idea of the situation and of the job they are working on. In peace-time exercises this policy increases the interest of the men, and in actual warfare it is frequently necessary. Some of the men may be called upon to act independently, in charge of the patrols or otherwise, and they can not be expected to do good work unless they know what is going on.

An advance party of two platoons might have an officer or sergeant and one squad as point, but in the case of a single platoon it is better to use only a sergeant and a half squad, unless there is a mounted point in the front; in the latter case, a squad would probably be better.

The distance between the point and advance party will vary according to the situation. In the present case, the country is open and the enemy is aggressive (he has attacked Company E), and the advance guard distances are longer than would be the case in close country or where the enemy is not aggressive; as, for example, if he is being pursued. We might send the point 300 yards in advance, but certainly not less than 200 yards.

In some regiments there is an inclination to use more connecting files than are necessary. In the present case, there are a number of bends in the road and patches of woods along both sides of it. A connecting file, and one only, is therefore necessary, but it is better to give it the usual 100 yards distance from the point.

The captain left to you the selection of the leader and the size of the point; also the question of distances and connecting files. You may be sure, however, that the captain will observe how you handle your little problem and will correct any mistake you make. In the same way, you will watch Sergt. Hill start his point, but you will not interfere or make suggestions unless he does something wrong. Where there is only a slight difference of opinion as to minor points, the captain will not interfere with you, and you will not interfere with Sergt. Hill.

The point takes an inconspicuous patrol formation, but the advance party cannot make itself quite so inconspicuous. If the advance party consists of more than one platoon, it is probably better to march it in column of twos, the men separating so as to march in double column of files along the sides of the road. Where the advance party is a single platoon, there are several advantages in deploying as skirmishers and then marching as a platoon column, the men spreading as already mentioned. There is room between the fences for the original deployment, since the platoon column soon relieves the crowding. The platoon is then ready to jump into place in an orderly skirmish line the instant you stretch your arms laterally to the signal: "As skirmishers, march." You should drill your platoon frequently in deploying from platoon column to skirmish line to the front, right front, left front, and even to the right and left. You should place yourself quickly where you wish the center of the line to be, and extend your arms so that they mark the exact line you wish to form.

The captain said that he would look out for flank reconnaissance. Your advance party is really too small to do so. However, you will watch the flanks very closely, and may even send a man to some nearby high point, but only when this point is especially advantageous for observation.

It might have been better to have assigned two platoons to the advance party and charge it with the flank reconnaissance. It takes training and judgment to determine what flank reconnaissance is necessary and what is unnecessary. Possibly, when you have shown that you possess good judgment in such matters, and another case like the present one arises, the captain will take advantage of your judgment and make an advance party strong enough to handle the flank reconnaissance. There is, of course, an advantage in sending flank patrols out from the subdivisions farthest in front.

All of Corporal Koenig's squad except Peterson and the corporal himself have been used in the point and connecting file. The corporal is available to march as platoon guide temporarily, but particularly to watch for signals from the rear. Peterson should be assigned to any squad that has a blank file. If no squad has a blank file, he may be assigned to any squad and will march in the line of file closers when the platoon is assembled.

SITUATION 2.

658. The advance party marching at an ordinary gait reached the road turn-in at Arellones (B-3) and is now only 75 yards behind the connecting file. The connecting file appears to be 100 yards behind the point. It is evident that the point is marching cautiously.

What do you do?

The First Sergeant's Solution

I order:

Hagen, jog ahead and overtake the point. Tell Sergeant Hill to march faster and keep his distance of 250 yards.

Discussion

In a small column the advance party is really the pace-maker. It must push the point ahead. In every case the column wishes to march at the regular gait. In the present case it is very necessary that the column be not delayed through the cautiousness of the point. We are still about three miles from Company E and a difference of five minutes in the time of our arrival may have an important effect.

You might hasten Sergeant Hill along by signalling, "Forward, march," or, better still, by semaphore message.

SITUATION 3.

659. The advance party is moving down the slope adjacent to the pasture (B-4) due north of Mura (B-3) and is fired upon from the north-

west. Your instinct tells you that the fire comes from the vicinity of the junction of the hedge and the road south of Luna (A-1) a distance of about 800 yards. The fire is a ragged volley, apparently a dozen rifles or so.

What do you do?

The First Sergeant's Solution

I jump to the lefthand fence, meanwhile shouting and signalling,

As skirmishers, march.

Then I drop down and look for the enemy.

Discussion

Combined with Situation 4.

SITUATION 4.

660. The instant you lie down you catch the movement of men in the orchard west of the buildings of Brentano (B-4). After the ragged volley there is a slight pause in the enemy's fire followed by fire at will at the rate of about one shot per second. The fire seems to be high. Our point has disappeared.

What do you do?

The First Sergeant's Solution

I shout,

Range, battle sight. Target: from the stone house at roadforks, 12 o'clock, left 2 fingers, edge of orchard; fire at will.

and then examine the target and observe the fire with my field glasses.

Discussion

As you march along the road you observe from time to time positions in front and on the flank from which the enemy might open fire. With these positions in mind you probably decide beforehand, in a general way, what you will do in case you are fired upon. Probably all you can do in most cases will be to decide to which side of the road you will jump, in case the road itself is unsuitable. The rest may depend upon details which you can hardly foresee or count on. When you arrived at the roadforks south of Mura (B-3) and some 7 minutes before firing began you could see the country to the northwest for about 2 miles. This was your first glimpse of the country in the direction of your march. You probably ask yourself: Which side of the road is the best now in case we are fired upon from the ridge to the northwest of us near Luna (A-1)?

If you were fired upon from the north and jumped to the right side of the road you would commit yourself to an advance through the large cornfield. In the cornfield the men would be safe from fire, but on the other hand would not be able to fire on the enemy. Furthermore, your progress would be very slow and patrolling would be difficult. If your command were a patrol, compelled to force its way north, with no column in rear depending upon it to clear the road, an advance through the cornfield would be satisfactory. In the present case, however, it is your duty to drive away small hostile parties, and also to get forward. The best line of advance for this purpose is west of the road. In a very short time you are covered by trees of the ravine, and by the ravine itself, and finally, when you are again visible to the enemy, you will be so close that he will not stand unless his force is much larger than his fire indicated. You will have delayed the column very little, all things considered.

The advance party is made strong enough, and is sent far enough in advance of the support, to prevent the enemy from bringing an effective rifle fire on the support until it can deploy. But the advance party is also made strong in order to be able to push small hostile patrols out of the way and thus save the support the necessity of deploying, and save the whole column more than trifling delay. If you estimate that the enemy in your front is so weak that you can handle him alone without assistance from the support, your play is to go after him as soon as you can locate him and give your advance party a proper formation. In the present case you have as yet no excuse for awaiting the assistance of the support.

A road is usually about 60 feet wide between fences. This gives deploying room for 2 squads only. Since the advance party must deploy and advance, it is best to form a good skirmish line first, even if you lose a man or two.

A small force like your advance party should not deploy in too thick a line. You have 50 rifles in your firing line. In the road there is scarcely room for one quarter of them. It is best for your expected fight, and also is best from a disciplinary standpoint, to insist upon the formation of a proper line and thus defeat the inclination of the men to drop in their tracks. By jumping to the lefthand fence, meantime giving the signal for deployment, you throw the left half of the platoon over the fence and into the field on your left. The right half of the platoon will be in line quickly in the road. The men nearest you then open fire. The others will open fire upon arriving in good firing positions, approximately on the line. The men who are still running to their places may not hear your first orders as to range and target, but repetition will soon remedy this.

You may indicate the range before the target or the target before the range. In the present case it makes no difference.

In designating a target which your men will probably have difficulty in seeing quickly and easily, you should always follow a logical system. To illustrate what we mean, we shall analyze your target designation in the present case. When you shouted "target" your men were warned to listen attentively and look sharply. When you shouted "from stone house at roadforks" you indicated a reference point that the men could pick up quickly and without fail. Your next command was "12 o'clock." The men then looked in the direction in which the hour hand of the clock would point at 12 o'clock if the men were the center of the clock. When you commanded "two fingers" your men held up two fingers at right angles to the hour hand, with the outer edge of the right finger against the house. They know then that your next command would indicate some spot very close to the point where the line of sight past the outer edge of the left finger intersected the hour hand of the clock. So, when you commanded "edge of orchard" your men not only knew which orchard you referred to, but they also knew about how far east of the house they should look for their target.

The logical system, therefore, is to warn the men by shouting "target," then naming the reference point as "from stone house at roadforks" (at) "12 o'clock," then indicating the distance of the target from this reference point and to which side the target lies by means of "left 2 fingers" naming the target itself last as "edge of orchard."

In this method of designation the observer is supposed to be at the center of the clock dial. "Twelve o'clock" therefore means to him directly in his front.

Note:—Officers in command of troops differ slightly in their methods of target designation. Some prefer to consider the reference point, as, for example, the stone house, the center of the clock dial, in which case the location of the orchard would have been given by the words "11 o'clock."

The authors prefer to use the system herein given.

Other officers prefer to give the target first, as "target, edge of orchard, from stone house at roadforks, etc."

If you reverse this order or mix it up or even if you give the proper order too rapidly you will find that you will have to repeat yourself.

Note:—The instructor should here diagram the method of target designation explaining the clock face method which he intends to use in his problems.

When the arm is extended full length, 3 fingers will measure 1/10 of the range. You know that the range is 500 yards and you saw signs of the enemy in the edge of the orchard 50 yards west of the house. If you had seen the enemy 100 yards west of the house, the point would have measured 4 or 4½ fingers, but when you are on the ground, the distance in fingers is determined directly by trial, and not by the arbitrary rule that we have adopted here.

Whenever possible you should indicate the two ends of your target in order that your men may distribute their fire over the whole target, but in the present case it is impossible to do so and open fire quickly. The full extent of the target is not yet determined and you must trust to luck in getting distribution. Later, you may be able to correct this defect.

If there had been good cover nearby for the platoon, it would have been proper to break into double time at the first volley and seize advantage of this cover, but that is not the case here.

The fact that you deployed and opened fire does not mean that you intend to stay there. By the time the last man is in place and ready for the advance, it would be well to whistle "suspend firing" and quickly judge your next move.

SITUATION 5.

661. After your platoon has been firing about 30 seconds you whistle, "suspend firing." Only one man, Schafer, has been wounded. The support appears to be approaching the orchard south of you, in column of squads. The enemy's fire continues at about the same rate as before, but is not accurate. The point is in the ravine in front of you.

1. What do you intend to do?
2. What are your orders?

The First Sergeant's Solution

1. I intend to work to my left through the wooded ravine to the creek, form skirmishers to my left along the creek and rush the orchard.

2. I blow a short whistle blast and signal,

Cease firing,

Then I signal,

Platoon columns,

Shout,

Follow me,

and break diagonally to my left for the clump of trees followed by the platoon. When I arrive at the junction of the wooded ravine and the little creek I signal,

As skirmishers,

and follow that signal by a signal to

Halt

when my men are under cover of the creek.

I shall signal the first two squads on the right of my platoon to rush to the house. These squads will presumably have been joined by the point. The rush of these three squads will be north of the main road and in rushing the house they will be protected from fire. Meanwhile the three squads left in the creek will be firing upon the enemy in the orchard. When the right squads reach the house and open fire the left squads can advance by rushes on the orchard.

Discussion

You may run into a larger Red force than you anticipated. That remains to be seen. If you judge their strength from the volume of their fire, you are obliged in this case to advance almost at once. Your advance may prove that your guess as to the hostile strength is wrong. On the other hand, if you wait for the support to help you out and then find later that 8 or 10 Reds have held you up, you will be very much disappointed with yourself.

Unless the enemy increases the volume or effect of his fire you should have no difficulty in reaching the ravine and the house. As soon as you are screened from the enemy you will present no target to him.

The Infantry Drill Regulations teach that fire superiority is necessary to the successful advance of an attack. This is not literally true in the case of every small detachment, or where a greatly superior force is peculiarly favored by the ground. In the present case the defender's fire is not effective, and you have good cover a short distance in front of you. It would be wrong to settle down into a fire fight with a view of creating a powerful moral effect on the enemy by the use of fire, or of matching your fire with his. When you have passed the ravine, and are again exposed to the enemy's fire, the situation may be different because of the open ground between you and him.

Whether the platoon is alone or deployed as part of the company, (I. D. R. 222) require you to arrange carefully the details for a prompt and vigorous execution of your proposed rush. You are told to cause the men to cease firing and to hold themselves in readiness to spring forward instantly. No preparatory command or signal is prescribed, although the signal, "Cease firing". and the caution, "Get set" or "Ready" will be a sufficient indication to trained men. Furthermore, you will not jump up and lead the platoon forward until you and your guide can determine from the positions of the men that all are ready, and understand. You should teach them to draw up one knee close to the body, without raising the body from the ground.

When you signaled, "Cease firing," the men were already in the position of "suspend firing." The difference between the two is, that in "cease firing" the sights are laid down, the men are not required to keep their eyes on the target, and they know from experience that a movement or change in formation will probably follow.

The flanks of a deployed line are vulnerable. If there are few men in the line, men cannot be spared for combat patrols. The commander must watch his flanks very closely, and do the best he can without sending patrols to a distance. The situation also affects the question of flank protection. If your platoon were alone, with no supporting troops near, you would be obliged to detach men to watch your flanks in an attack over the ground on which we are now working. In the present case, the support is behind you and very likely has patrols on the flanks.

Unless Schafer's wound is one which requires immediate action, which is rarely the case, you are obliged to leave him by the side of the road, without an attendant. In a short time he will receive more intelligent care from the sanitary personnel. Under the circumstances it would be wrong for you to bother about him, and the men nearest to him could do no more than help him to a convenient place, unless he were threatened with a heavy loss of blood. When proper medical care is so near at hand, it is not well to tinker with a man, and it is wrong to decrease your fighting strength because of any undue regard for his comfort.

SITUATION 6.

662. When the right three squads reached the house the enemy's fire had ceased and the advance of the left three squads was made without their being fired upon. It was evident that the enemy had retreated northwestward through the cornfield in the direction of Luna (A-1). The head of the support has reached the creek.

What do you do?

The First Sergeant's Solution

I reform my advance party on the road south of the orchard and send out a right flank patrol of one squad under Corporal Clark to search the orchard for dead and wounded and whip northward through the cornfield and return to the road joining the advance party later. At the same time I direct the point to move forward. When the point has reached the hedge I move the advance party forward having established my connecting files between the point and the advance party.

Discussion

A small body of hostile troops can delay our column by firing upon it, no matter how aggressively we handle the advance guard work. One of the great advantages in having cavalry attached to the infantry is due to the fact that the cavalry can frequently drive off these small parties without delaying the infantry column. If our battalion had had even a half troop of cavalry attached to it, there probably would have been no delay. The cavalry would have preceded the infantry by considerable distance, and, by trotting ahead after this minor fight, would have regained whatever time it lost by reason of the fight.

You have been delayed a few minutes, however, and now, having compelled the enemy to withdraw from your front, it is urgent that you make the delay as short as possible. It does not seem necessary to comment upon the manner in which this was done. You merely re-establish your advance party on the road and start forward. If the point were not conveniently located, you would probably prefer to send out a new point.

There is a twofold reason for searching the orchard for dead and wounded. It may be possible to assist some men who might otherwise escape discovery by the inhabitants, and thus suffer unnecessarily. A more important reason, probably, is the fact that valuable information may be obtained, not only from the uniforms and pockets of the dead and wounded, but also by questioning wounded men who are conscious. If it involved a long detour, you would not send a patrol on such a mission, with such lack of evidence as to whether there really were any dead or wounded.

It is essential to know that the cornfield is clear of the enemy before marching the advance party on the road past it.

SITUATION 7.

663. Corporal Clark's squad has rejoined. The corporal reported:

> I found a wounded cavalryman. He said that his squadron had been sent to cut the railroad, and had fought Blue Infantry this morning. I brought him to the road and left Hagen in charge, to turn him over to the Captain.

When the point has reached the railroad and the tail of the advance party has just cleared the hedge, a stiff fire is received from the cornfield to the north.

What do you do?

The First Sergeant's Solution

I face about, extend my hand southward, and shout,

> Cover,

and jump off the road into the meadow to the south. Then I look for the enemy.

Discussion

While you were marching along the road the creek to the left of you certainly attracted your attention because of its tactical value. In a former situation, we said you would study the ground as you marched. Your advance party is likely to be fired upon from any direction. The troops in rear of you will be saved from such annoyance because of your advance party marching in front, and the flank patrols that the support will send out from time to time. In a large command the advance party itself will receive better protection because the command will have cavalry, and this cavalry can send patrols to the flanks ahead of the advance party.

While approaching the railroad you probably thought as follows:

> If we are fired upon from the front or from the right flank we will make a break for the trees on our left. If we are fired upon from our left we will break into skirmishers along the creek.

In other words, your action was practically decided upon before the volley was fired. This is not always possible, but with practice in field exercises you will find that you will rarely be caught unprepared for reasonably quick action.

In a previous situation we pointed out that you should make the platoon do exactly as you wished. You cannot do so if you are in the habit of attempting impracticable or impossible things. Generally, only the simplest thing will work. Your men look instinctively to you the instant the first shot is fired, unless their experience has shown them that you get rattled, and that they have to shift for themselves until you pull yourself together. In the present case, if you jump into the ditch and say nothing, the men will probably follow suit. But no matter how obvious may be the necessity for seeking cover at once, an order to that effect gives the impression of quick thinking and decision. To act properly even in such a case trains your men to expect orders and not to adopt their own ideas. Sometimes, when the natural inclination of your men may be to do one thing, you may have a very good reason for wanting them to do something else. In such case, if your men have learned that you never fail to indicate quickly what you want done, their eyes and ears will expect signals and orders, and you will have their attention at once.

Non-commissioned officers of infantry and cavalry are often suddenly confronted by many peculiar and novel situations requiring quick and decisive action. In such moments, they need the strict attention of their men, but they will not receive it if the men have discovered that it is wasted.

In a sense, the enemy has surprised you. Let the men get the best cover available, while you expose yourself only enough to locate the enemy, and see what else is going on.

If you march along the road and estimate that the danger is greatest on one or both flanks, a platoon may be marched in platoon column, but broken in such a manner that one squad leads, say on the right side of the road; the next squad follows, but on the left of the road; the next squad on the right, and so on. Whichever flank the platoon faces, squads will be together when formed in one line and there will be no crowding. When you reach a point on the road where the greatest danger is in front, it will only be necessary to order "close up," and the platoon will be ready for a rapid deployment astride the road. If serious danger is apprehended, you would change the formation as the direction of possible danger changed.

The relative order of the squads in column or in line is immaterial.

You are frequently told that it is unpardonable to be surprised. This hardly applies to patrols, or even small advance parties. It does apply to your battalion. The battalion uses the point, advance party and flank patrols to guard itself against surprises, but these latter detachments cannot always avoid surprise. By surprise, we mean, in the present case, unforseen hostile fire at effective range.

SITUATION 8.

664. After the volley the enemy fires at will. There are probably 100 rifles firing upon you. You soon realize that the enemy is firing from

the cornfield to the north of you but not very accurately. The point has jumped to the left of the road and has gone into cover at the creek. The head of the support has reached the stone house at Brentano (B-4) and has started to deploy to the right and left of the roadforks. All this has happened in half a minute. It has taken you this much time to get your bearings and locate the enemy.

What do you do?

The First Sergeant's Solution

I shout,

Target,

extend my arm toward the cornfield and add and signal,

Cornfield! Battle Sight. Fire at Will.

Then I resume my observation.

Discussion

We can quickly pick up the limits of the target. The view is unobstructed. In the present case, we cannot wait to make a long examination and explanation. The support is deploying into the creek. It is the duty of the advance party to attract to itself as much of the enemy's fire and attention as possible. Hence, the advance party should fire as soon as it locates a part, if not all, of the enemy's force. All that you can do for the present is to direct the attention of your men to the edge of the cornfield. Every man must find for himself a fire position and fire upon whatever he sees. Each man's view will be different. None will see much. This is no time to bother with fire distribution. Firing exercises teach sound principles of command and execution. You will apply these principles whenever you can. When, in your judgment, the situation makes it extremely difficult, if not impossible, to indicate the limits and to expect fire distribution, do not fool away valuable time in a useless effort to be perfect, but tackle your job in the simplest and most practical way that occurs to you. This advice, however, should not be made an excuse for failing to be more definite and exact when time and conditions permit.

In a previous situation the advance party alone drove out the enemy. It is evident it cannot do so now. The volume of the enemy's fire has caused the support commander to see the situation in the same light. The support is, therefore, preparing to assist you in driving the enemy out, or in determining his exact strength and position. The most decisive results will come from the action of the support. The more you can attract the enemy to the advance party, the easier it will be for the support, when finally it is able to open fire and push its attack.

SITUATION 9.

665. Four minutes after you opened fire the left flank of the support consisting of one platoon appeared around the bend of the creek south of the hedge [Luna (A-1)]. The right and center platoons of the support advanced to a position so that they occupied the northwest corner of the orchard and buildings at Brentano (B-4), connection between these two groups being maintained by a thin line of men. You have not seen the main body. The enemy has been firing steadily on your advance party. One man on your left seems to be wounded. You are in the center of

your platoon. A moment later the platoon of the support on your right opens a vigorous fire. Another moment and the fire upon your advance party is reduced by half. Firing on your right in the vicinity of Brentano (B-4) seems to indicate that the rest of the support is in action. The field in front of you is flat.

What do you intend to do?

The First Sergeant's Solution

The fact that my platoon is now a part of the company and that the open space between the enemy and me does not admit of rushing his position, and also as I do not know what the intentions of my Captain are in regard to the other platoons I am forced to await instructions from the Captain before proceeding further with the problem.

Discussion

We have purposely thrown on you the full responsibility for handling the platoon. We think that ordinarily you would receive from the Captain some instructions or hints to guide your actions. On the other hand you will often be called upon to act on your own responsibility without any intimation as to what the captain desires. When this happens, you should comply with the spirit of Pars. 372 and 373, Infantry Drill Regulations.

The attack by our company or battalion will be without result unless we close on the enemy. As soon as the support gets into action and the effect of its fire is felt by the enemy, your waiting game ceases. From this point you should not hold back unless an advance is impossible.

Sergeant Hill, in command of the point, seems to understand that it is necessary for him to watch your left flank. He appears to have taken over the duties of a combat patrol. As long as his action and movements are satisfactory, it will not be necessary to give him any orders.

The preparation, orders, and signals for an advance by rushes will be considered more in detail in another problem.

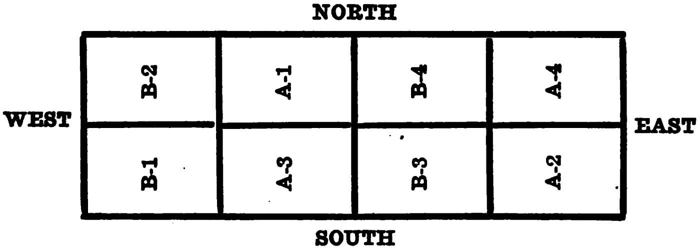
The next change in the situation will make your platoon a combat patrol. This will be made the subject of the problem which follows.

It should be noted that the location of the enemy in the cornfield and orchard at Luna (A-1) presumably holding the buildings at Luna (A-1) is a splendid position for him to take to delay the march of our column. To advance against him across the open field would entail severe losses, while on the other hand, the two platoons of the support on the right flank can advance against Luna (A-1) only by pushing through the cornfield, crossing the road, and taking a position along the hedge which is perpendicular to the enemy's front permitting him to enfilade the right of our line in such a position. Unless it is ascertained that our forces are materially superior to those of the enemy it would be very difficult, if not perhaps impossible, to dislodge the enemy from his position except by a turning movement around his left flank.

LESSON 33

FIFTH PROBLEM

A Combat Patrol



EXPLANATION

666. "Reconnaissance continues throughout the action. A firing or skirmish line can take care of its front, but its flanks are especially vulnerable to modern fire arms. The moral effect of flanking fire is as great as the physical effect. Hence, combat patrols to give warning or covering detachments to give security are indispensable on exposed flanks. This is equally true in attack or defense." (I. D. R. 396.)

By a careful reading of the paragraph quoted, you conclude that if the force sent out on the exposed flank is so small that it can only give warning, it is called a combat patrol. If it is large enough to offer resistance, it is called a covering detachment. The distinction in name is unimportant. For convenience, all bodies sent to an exposed flank to warn or resist are called combat patrols unless they are quite large. If a regiment is fighting alone, the colonel may send a company to an exposed flank and call it the right (or left) flank detachment. If a brigade is fighting alone, the same company may be sent to an exposed flank and may be called preferably a combat patrol. In practice, it is partly a matter of relative size and partly a matter of taste and convenience. The important thing is to know that the detachment, whether it is called a combat patrol or a covering detachment, will resist if it is strong enough, but in every case it will give early warning and full information.

The size of a combat patrol depends upon a great many things that need not be discussed in connection with the present problem. It may consist of only two men. It is conceivable that in some cases one man, favorably located to observe and signal, would make a satisfactory combat patrol.

SITUATION 1.

667. This is a continuation of the last situation of the previous problem.

The captain of your company sends you a message to move your platoon across the railroad and to the roadforks just north of C. Langford (A-1), awaiting at that point the arrival of the other three platoons, and that the other three platoons would advance in the direction of Luna (A-1) returning to the crossroads north of C. Langford (A-1) by circling the quarry.

Your advance party is now on the north side of the creek, 200 yards east of the bridge. One platoon of the support is on your right, 100 yards away. Firing has ceased. The enemy has disappeared, evidently having mounted up north of the cornfield. The point is at the bridge. Your former connecting file is with the platoon. As you start to move, the battalion adjutant arrives and says to you,

"Red Cavalry has driven Company E northeast of Nadal (B-2) but Company E is still fighting. Most of the Red Cavalry seems to be between here and Nadal (B-2), probably in position one mile west of us. The battalion is going to attach at once in the direction of Nadal (B-2). Take your platoon over that hill (pointing to the north corner of the cornfield southeast of Gonzales [A-1]) as a combat patrol.

1. What do you think?
2. What do you intend to do?
3. What orders do you give up to the time you reach the vicinity of C. Langford (A-1)?

The First Sergeant's Solution

1. I think that my combat patrol must reach the hill indicated and I may have to fight to get to that hill. I have two routes to go. I may cross the bridge south of C. Langford (A-1) or north of C. Langford (A-1). In view of the fact that the rest of my company will circle the quarry I should take the northern route, turning southwestward after I have crossed the bridge. I must notify my company commander of the orders received.

2. I intend to form my unit into advance guard, support and flankers and go to the bridge. By the time I reach the bridge the rest of the company should have reached the cornfield west of Luna (A-1) and if I hear no firing I can presume that they have encountered no enemy and can proceed.

3. I send two men forward toward the north bridge at a double time, and at the same time two men to the right and two to the left as flankers, so that they can gain their proper distances from my advance party. They would double time until they had gained 150 yards from the advance party. I then give the command,

By the right flank, march,

to two squads of my platoon as the advance party and I acccmpany it myself. When we have gained 200 yards I signal,

Forward,

to the remainder of my platoon to follow me as support. When the point reaches the north bridge I halt my platoon and signal Sergeant Hill and Corporal Koenig to join me. I give them the following instructions:

> Company E is still fighting somewhere northeast of Nadal (B-2) in that direction (pointing). The enemy will probably put up a fight a mile from here (pointing toward Nadal [B-2] between here and Nadal [B-2]). Our battalion will attack at once towards Nadal (B-2). This platoon is the combat patrol on the right flank. We are going to that hill (pointing toward Gonzales [A-1]). Sergeant Hill, call in the flankers and march your point across the bridge and southwestward along the bank of the stream until you reach the cornfield. Then up through the cornfield until you reach the crest of the hill, where you will halt. Corporal Koenig, you will take one squad and work northward along the stream, then westward paralleling the road until you get to the vicinity of Gonzales (A-1).

Then I march to the bridge, assemble the platoon, restore its organization, and give the following orders:

> The enemy is probably between here and Nadal (B-2). Company E is fighting farther north. Our battalion is going to attack. Our platoon is the combat patrol on the right flank of the battalion. We are going over that hill. Corporal Clark, platoon guide. Towney, fall out and march so as to be able to see me and at the same time see the battalion, if possible, but keep within 100 yards of the platoon. As skirmishers, march. Platoon column, march.

I lead the platoon across the bridge and southwestward along the bank of the stream to the edge of the cornfield and move up through the cornfield.

Discussion

Our purpose in asking, "What do you think?" is to encourage you to settle clearly in your mind, when time permits, the salient points that will influence your intentions and orders, before taking action and issuing orders.

The enemy is not likely to leave such an excellent observation point as the hill near Gonzales (A-1) without a patrol on it. This is particularly true when the enemy's force consists of cavalry, as in this case. Because of its mobility, cavalry sends patrols longer distances from its main body. Therefore, you may be obliged to fight for possession of the hill. It is possible that you may find the hostile force on the hill too strong for you, but this fact, if you find it to be a fact, becomes very important information for our battalion commander. The attack of the battalion, as planned, might then become impracticable. Therefore, your conclusion must be that it is your duty to attack any force that you find near the hill, in order to drive it out quickly, if possible, or failing in this, then to fight vigorously enough to learn its strength and position.

A march in skirmish line would cause unnecessary fatigue and disorder. Even if such a formation were a justifiable excuse for dispensing with a point, which is doubtful in this case, it would still necessitate the flank patrol. Under the circumstances, it is better to march in platoon column with proper protection.

All bodies of troops marching in the actual or probable presence of an enemy must protect themselves from surprise. The number and strength of these covering detachments, or patrols, as the case may be, vary according to the strength of the whole force, the imminence and nature of the danger, and the ground. A detachment sent out to cover (protect) a force will generally have its own covering detachments. For example, your platoon is a covering detachment (combat patrol) for the battalion, but you also must have your own covering detachments. Therefore, you have a point and a right flank patrol, not counting Towney, who is merely to keep you in communication with the battalion if possible. Furthermore, Sergeant Hill will probably march with one man in front of him and one man on his right while he and the other men form what might be called the main body of the point.

In view of the short distance to your destination, it would be unwise to march on the road. There is an even chance that you will draw fire from the vicinity of the hill.

You did not prescribe a distance between the point and the platoon. It is necessary for Sergeant Hill to reach the top of the spur quickly in order to see toward the northwest. The platoon, on the other hand, should march under cover of the creek. Furthermore, you are now guiding on the point (not vice versa, as in the Fourth Problem) and may vary your distance from time to time.

The platoon should be checked up and organization should be restored as often as necessary and possible, but it is best to do so under safe cover, as, for example, near the bridge selected. The bridge has the probable further advantage of water supply for your men. However, you would lose time if you attended to this matter first. Hence, you would first send out the necessary patrols, and as they are gaining their distances you would assemble the platoon and prepare for the forward movement.

The senior corporal should be designated as platoon guide for that part of the platoon which remains directly under your command. In this connection, you may be curious to know why the Infantry Drill Regulations give the platoon leader an assistant who is second in command, while the captain has none. When a company deploys, the captain gives his commands, orders, and signals to platoon leaders only. If he passed over these leaders and tried to handle 15 or 16 squads in battle his control would fail oftener than it would succeed. If he tried to handle every man directly, matters would be still worse; the line is too long and the excitement and noise are too great. A platoon is small enough to permit the observation and control of individuals; hence all commands, orders, and signals, intended for individuals, or squads, or the platoon as a whole, are given by the platoon leader. Only the general movements and actions of the platoon are indicated by the captain to the platoon leader. This throws on the platoon leader the necessity for watching to the front and rear, and sometimes the flank, and studying the situation with a view to planning future action. Someone must observe the men in the line in order to preserve control, discipline and steadiness. The platoon leader cannot do both. The guide, or second in command, is the watchman and disciplinarian. If the company is so small that the captain chooses to handle it as a single platoon (I. D. R. 166), the function of watchman and disciplinarian passes to the lieutenants and first sergeant. There will always be a first sergeant or acting first sergeant available. To follow out the principles explained above, the platoon, whether with the company or acting alone, must always have a platoon guide. In battle or skirmish you will quickly see the advantage of this firm control, an advantage that may not be so apparent in peacetime exercises.

You failed to notify the captain of the receipt of your orders. You also gave the command, "as skirmishers, march; platoon column, march," which is strictly true as regards paragraph 213 I. D. R. However, paragraph 220 I. D. R. permits you, in necessity and combat work, to adopt suitable forms and the command, "platoon column," directly from column of march might have been given if your men had been trained to execute it.

SITUATION 2.

668. When you restored the organization of the platoon (that is, reformed the squads and checked up your men) you found that Schafer, Stone and Wilson were missing. Schafer was wounded in the first skirmish. Their squad leaders tell you that Stone and Wilson were wounded in the skirmish just ended. (Last Problem.)

You are now at the head of the platoon column and about to enter the cornfield. The point is about 100 yards west of you and just inside the edge of the cornfield, but is momentarily lost to view. You see a few Blues near the quarry but there is no firing in that direction. Five or six rifles open fire from the vicinity of the north edge of the cornfield near Gonzales (A-1); a moment later you hear your point open fire.

What do you do?

The First Sergeant's Solution

I command and signal,

As skirmishers, to the right, two paces, march,

and precede the platoon so as to get an early view of the ground.

Discussion

You have some yards to go to the top of the bank of the stream. When you reach the top you may be fired upon but you will be able to return the fire and start an attack. Skirmish lines would, therefore, be formed before the platoon is exposed.

You have now about 30 men in your skirmish line. At 2 paces interval these men will form a line about 60 yards long. The normal firing line should hold about one man to each yard of front. But this applies to firing lines of larger forces, where there is only a certain amount of front available or usable, and it is necessary to place along that front as many rifles as possible. When we deal with a platoon or less, and sometimes a company or more, there is an advantage in making a line longer and thinner (that is, less than one man per yard). It may sometimes reduce the vulnerability of our line, considered as a target, and permit better cover for individuals. It may enable us to point more rifles on our own target, particularly where the ground is broken, or the enemy has good cover and is shifting a great deal. But when you intentionally make your firing line longer, you must adhere strictly to two principles; First, the line must not be too long for easy control. Second, the line must not be made so long that the end rifles cannot get on your target.

When the platoon is in skirmish line your post is in front during a rush or charge; otherwise, it is in rear of the center, unless you have a reason for going elsewhere. In the present case, you precede the platoon, if only by a few yards in order to be the first to see over the bank of the creek. In this connection see I. D. R. 369, second section.

Under cover of the fire from the bank of the stream you might work up through the cornfield in small groups and dislodge the enemy.

SITUATION 3.

669. After a sharp fight on the part of the point in the cornfield assisted by the fire of the platoon from the bank of the creek the Red outpost withdrew to Gonzales (A-1) and your combat patrol reached the northwest edge of the cornfield in skirmish line. The Blue forces can be seen moving south towards the roadforks near the quarry. Blue troops are seen moving westward on the south bank of Blue River about opposite C. Langford (A-1). You come under a few enfilading shots from the woods apparently at the angle of the woods southwest of your line and a rather heavy fire from the northwest corner of the woods and a heavy fire from the buildings at Gonzales (A-1).

What do you do?

The First Sergeant's Solution

I withdraw my skirmish line into the cornfield under the protection of the crest of the hill, leaving a couple of men on my right flank to watch Gonzales (A-1). I send two men down the south bank of Blue River, each with the following message to deliver to the Blue commander opposite C. Langford (A-1):

From the combat patrol in cornfield 200 yards southeast of Gonzales, 11 A. M.
To the Commanding Officer, First Battalion, ——th Infantry.

Red forces occupy Gonzales. Apparently an outpost. Also Red outpost line in woods south of Gonzales. This combat patrol will remain in cornfield. Advance on Gonzales impossible while Red forces occupy woods south of Gonzales.

(Signed) A. B. Holmes,
1st. Sgt. Company A, ———th Infantry.

Discussion

It is difficult to post a small command with the aid of a map only. A visit to the ground may prove that your solution is by no means the best. A map does not show the minor accidents of ground and cultivation that are most useful to a small force. However, the solution will serve our purpose, which is to show the relation of the combat patrol to the battalion and what the patrol should be prepared to do.

Apparently the battalion is making careful preparation for its attack. The enemy is very likely in the vicinity of Lambert (B-2). Eventually, the right flank of the battalion may reach the patch of woods southwest of you. You can see that this flank of the battalion would be exposed to attack from Gonzales (A-1) if you were to vacate your position. A counter-attack from this direction is especially to be provided against in the present case since the enemy's force consists of cavalry. Your task, then, is to protect this flank, by defensive action if possible, but by ample warning at all events. This is the most important area to be watched. Other areas that require watching are the open ground between Lambert (B-2) and the northwest corner of the woods, so that you may be able to inform the battalion of any advance by the enemy from Lambert (B-2), and the road from Lambert (B-2) to Gonzales (A-1). Your patrol in the bed of the creek northeast of Gonzales (A-1) can see Gonzales (A-1) and in the event of an advance by you can assist you with their fire.

The platoon has been withdrawn from the good fire position on Gonzales (A-1) and the ridge at Lambert (B-2) because, at the present, its position is untenable.

You are not likely to remain long in your present position. A combat patrol must conform in a general way to the movements of the force it protects. Until our battalion approaches the woods south of Gonzales (A-1) you cannot improve your present location. It is too early to decide upon your next move. You may get orders on the subject, or the attack may assume an unforeseen course or extension.

There is no present necessity for firing on the Red patrol at Gonzales (A-1). It is enough to report its presence to the battalion commander. Neither is it advisable to drive the patrol off by an attack, for the platoon would be subjected to unnecessary losses.

The dispositions of your platoon are probably not as simple as would be the case in an average combat patrol situation. This is partly due to the cornfield and the conformation of the ground and partly to the fact that the hostile force consists of cavalry.

SITUATION 4.

670. It turned out that there were very few Reds in the woods south of Gonzales (A-1). As the firing line of the battalion advanced, reconnaissance disclosed the fact that the enemy's main force was at Lambert (B-2) and would probably defend the Lambert (B-2) ridge. At least that is what a mounted orderly told you when he arrived and handed you the following message:

Woods south of Gonzales,
4 Sept. 12 noon

Sgt. Holmes,

Flanking fire will be delivered by us on Gonzales under cover of which you will attack Gonzales.

CROSBY, Major.

The First Sergeant's Solution

I pass the word along to the platoon that Gonzales (A-1) will soon be fired upon from the woods. I signal the platoon to move forward as skirmishers and halt them on the crest at the edge of the cornfield facing Gonzales (A-1) and open fire on Gonzales (A-1), and as soon as the flanking fire from the woods is opened I move my entire platoon forward by squad rushes.

Discussion

You must not expect every message to be exact as to details. It is evident that if the flanking fire from the woods continues when you reach Gonzales (A-1) you will be fired upon by your own troops. It is to be presumed that the commander who sent you the order realizes this also and would cause his fire on Gonzales (A-1) to cease or to be redistributed before you reach the buildings.

Corporal Koenig can observe your movements and would be in a position to assist you by opening a flanking fire on Gonzales (A-1) from a position near the creek.

The nature of the problem would indicate the enemy occupying an outpost line from the bridge north of Gonzales (A-1) along the crest of the cornfield and through the woods south of Gonzales (A-1) with local supports at Gonzales (A-1) and at the northwest corner of the woods. This would enable you to assume that his reserve would probably be at

670 (contd.)

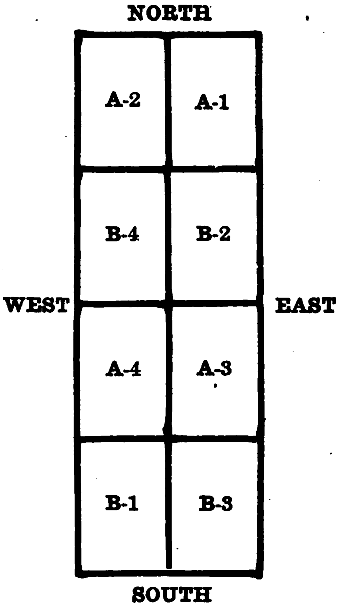
Lambert (B-2) with his main body at Nadal (B-2) especially as the line of resistance is the line occupied either by the supports or the reserve. In this case the ridge in front of Lambert (B-2) would show that the enemy would probably choose the latter.

The dispositions of the Blue forces now form a semi-circle about Gonzales (A-1) making the retirement of the Red support at Gonzales (A-1) extremely hazardous if not impossible.

LESSON 34

SIXTH PROBLEM

A Picket



EXPLANATION

671. "The outpost is a covering detachment detailed to secure the camp or bivouac against surprise and to prevent an attack upon it before the troops can prepare to resist." (I. D. R. 678.)

When troops are in camp or bivouac in the presence of the enemy, the amount of rest and security that can be given depends upon an outpost arrangement. The number of men actually on their feet on outpost is relatively not great.

A comparison with the advance guard problems will show that the same principle of distribution applies to an outpost.

"Patrols or sentinels must be the first troops which the enemy meets, and each body in rear must have time to prepare for the blow. These bodies cause as much delay as possible without sacrificing themselves, and gradually retire to the line where the outpost is to make its resistance." (I. D. R. 695.)

The bodies of troops nearest the enemy are very small. We find that the various parts of an outpost, as in an advance guard, increase in size as we go back toward the main camp. An advance guard is a moving body and is on one road. An outpost is a stationary body and is divided so that a part of it is on each road that the enemy is likely to use if he marches toward our main camp.

Besides allowing the troops to rest, an outpost attempts to prevent the enemy from observing our camp and, in case of attack, gives warning or resists so that the main body can have time to prepare for whatever may be the proper action under the circumstances. An outpost also reconnoiters to the front for information of the enemy or the ground, or both. Thus, the duties of the outpost are observation, resistance and reconnaissance.

For convenience the parts of an outpost are given appropriate names as follows: Reserve, support, outguard (an outguard may be either a picket, a sentry squad, or a cossack post) sentinel post, patrol, detached post. These names, and the purpose of the parts which they designate should be clearly understood. See I. D. R. 683-697.

Usually the commander selects a defensive line on which he proposes to fight if the enemy attacks. The supports are ordinarily located at points on this line where roads cross it. These points define what is called the "line of supports." In front of this line are the outguards. Their duties are to observe and reconnoiter so as to give warning. In case of attack they offer what resistance they can, and eventually fall back to the line of supports. In rear of the line of supports is the outpost reserve, conveniently located to reinforce whichever support is attacked. Behind the outpost reserve is the main camp.

The present problem deals with an outguard which, because of its size and purpose, is called a picket as distinguished from a sentry squad or cossack post.

SITUATION 1.

672. Our brigade has been marching north on the Mason (B-1)-Bethel Church (A-3)-Partin (B-4)-Pedrino (A-2) road in the enemy's country. It has been reported the enemy is several miles to the north and that our brigade will halt south of Blue River (A-3 & A-4) until tomorrow or the day after to await reinforcements.

It is November 1st and the corn is in shock.

Our battalion has been the advance guard and is now (2 P. M.) halted as follows:

The reserve (Companies A & B) on the road east of Mason (B-1); the support (Companies C & D) 500 yards north on the road east of Bohman (B-1), with its advance party on the ridge 100 yards past the farm road leading to Bohman (B-1) as march outpost. Later Captain Rowen marched our company (A) within 100 yards of the advance party, halted, assembled the non-commissioned officers and said:

> The enemy is reported to be in camp two miles northwest of Pedrino (A-2). Our brigade is going to camp on this road a mile and a half to the south, with our battalion as outpost. Companies C and D will be in reserve near Mason (B-1). Company B as support No. 2 on that ridge about half a mile southwest of here. This company as support No. 1 will be in this vicinity near the road. The exact location of the company will be fixed later. There is a trail not marked on the map, leading north from here, crossing the river at the island south of Foster (A 3). Sergeant Crane, take the second platoon and place outguard No. 1 to cover that ford. Sergeant Holmes, take the first platoon ahead and establish outguard No. 2 covering the bridge where the main road turns north and crosses the Blue River.

You are Sergeant Crane commanding the second platoon.

1. Where do you place your picket?
2. What further dispositions do you intend to make immediately upon arrival?

Sergeant Crane's Solution

1. I place the picket 100 yards east of Bacon (A-3) near the southern edge of the cornfield.

2. I place a double sentinel behind a corn shock, selecting one which will enable the sentinel to see the ford, the road on the far side of the river, and as far southwest as the rising ground held by outguard No. 2. I send a patrol of 3 men across the Blue River by way of the ford to patrol half a mile beyond the ford and then return. I send another patrol of 2 men to examine the wooded knoll 300 yards northwest of us. I send another patrol of 2 men to locate outguard No. 2 and on the return trip to examine the Blue River for possible fording places to a distance of 400 yards east of the ford. I begin digging a fire trench along the south edge of the cornfield to command the ford and send a few men to level whatever corn shocks I find in my proposed field of fire, except the one used by the sentinels.

Discussion

In the next problem (Vol. No. 2) which deals with the First Platoon as Outguard No. 2, we shall consider more in detail the orders and instructions actually given to an outguard and its detachments.

There are several interesting points in connection with the outguard established by the Second Platoon. When you study the Seventh Problem, you will observe that the dispositions of the two outguards are somewhat different. At first glance the two seem to be alike in every detail. Both are of the same size; both are sent out from the same support, and each covers a Blue River crossing and an important approach towards the troops that are to be protected. Still there is enough contrast between the two outguards to demonstrate the truth of the statement that no two situations are alike, and, therefore, an outguard disposition which fits one case may be wholly wrong, or only partly right, in another.

Until the commander of the support has reconnoitered the sector assigned to him, and particularly the road assigned to your outguard, he is obliged to leave to you the first selection of the position for the outguard and the first dispositions as to sentinels, patrols, etc. As soon as the captain is able to do so, he will visit your outguard, learn what you have done, reconnoiter the vicinity, give you more detailed information as to the location and responsibilities of the various parts of the outpost, correct your dispositions, if he so desires, instruct you as to the changes to be made at dark, and tell you the arrangements for messing and ration supply.

Naturally, you hope to arrange the picket so advantageously that the captain will not be induced to order changes. In the present case, you have so obviously the proper place for the main body of the picket that you need not hesitate to entrench at once.

The map indicates that there is no underbrush among the trees in the vicinity of the ford. If it were otherwise, you would do well to cut out the underbrush so as to have a clear field of fire, at least as far as the island.

Technically, a picket is only an outguard. An outguard ordinarily observes and warns, but does not expect to offer serious resistance. However, when the outguard is so large that we give it the convenient name of picket, and when in addition it finds a favorable position covering an important approach, it should entrench and prepare to offer resistance.

A single sentinel behind a corn shock might be enough, and would certainly be correct if the outguard were only a sentry squad. But you have an entire platoon, (about 35 men, the company having suffered losses) and the sentinel post is an important one, charged with the duty of observing for long distances and in many directions. You might prefer, also, to post a lookout in the immediate vicinity of the picket itself, to keep its eye on the sentinel post. This would surely not be wrong. On the contrary, it would be necessary if you found that the sentinel post was not easily seen by most of the men of the picket.

As soon as an outguard reaches its post, a commander must acquaint himself with the conditions in his vicinity. He can do this by a careful observation of the ground if the area that falls to him is limited, or if an extensive view of his area can be had. Where the area is quite large and the view restricted, as in the present case, and when, in addition, the outguard has enough men, the quickest and surest means is to send out patrols in various important directions. But these patrols should not go far. Your immediate vicinity is your first concern. Later, when you are well established and familiar with the immediate vicinity, you can plan more carefully the changes and patrolling that may be necessary.

If your non-commissioned officers have skill in making a topographic sketch, it would be well to have them start at once a sketch showing the road you are on, the position that you occupy, and the other important features to the right, left and front. Ordinarily, the support commander, or some one detailed by him, makes an outpost sketch for the entire support. You can assist materially in the rapid completion of a more accurate sketch if you turn over at least a diagram showing directions and distances to various important features.

SITUATION 2.

673. Your three patrols return and report that they have discovered nothing except as follows:

The knoll northwest of you is so steep and so densely wooded that it is impassable. The railway tunnel has been blocked apparently by a fall of rock. The river bank north of the knoll is impassable on account of the rock formation. The river is unfordable at all points except the one you are watching.

What further dispositions, if any, do you intend to make?

Sergeant Crane's Solution

None.

Discussion

You have apparently disposed your forces in such a manner as to effectively cover the only crossing in your sector and there is consequently no need of any further change during daylight.

SITUATION 3.

674. Ten minutes after your arrival at your present position, two mounted orderlies of the regiment turned over to you a telephone connected with Support No. 1 and the outpost reserve.* Presently the captain arrived. He approved all that you had done. He informed you as follows:

> If you are driven back, you are authorized to fall back on the support. The outpost has been reinforced by a platoon of cavalry, which now forms a detached post where the road crosses Blue River east of Vilas (A-4) 1200 yards east of your picket. The wooded spur 600 yards east of your picket marks the right of the sector of our support (Company A). The support will send supper to the picket at 5:30 P. M., and breakfast at an hour to be announced later. The changes for the night, as far as they relate to your picket, will be as follows: the picket will move forward to the water's edge at the ford. Hourly patrols, on the even hour, to the cavalry detached post and to outguard No. 2. No. 2 will be at the bridge during the night. The opposite side of the Blue River also will be patrolled. Night signal:
> Twenty-three, forty-one.

What preparations do you make, during daylight, to carry out the captain's order for night changes?

Sergeant Crane's Solution

I cross the ford with two corporals, in patrol formation, leaving the platoon guide in charge of the picket. I decide to place a double sentinel on the island. To both corporals I point out the houses 400 yards north, as guides for night patrolling. Then we return to the picket and I prepare a roster as follows:

For the double sentinel on the island 3 reliefs of 2 men each with a Corporal in charge.

A guard for the bivouac of the picket; three reliefs of one private each, with a corporal in charge; one hour on, two hours off.

For patrolling the road to the houses above mentioned and east and west on the main road (every hour day and night) two reliefs of four men each (1 squad, the Corporal and No. 2 as leaders).

For a visiting patrol to the cavalry detached post, two reliefs of two privates each.

For a visiting patrol to outguard No. 2, two reliefs of two privates each.

The leaders of these patrols are then sent in pairs to examine their routes by daylight.

The patrol to the cavalry detached post is given the following route: From the south end of the ford (proposed bivouac) east along the railway track to the cavalry post; returning by the same route.

The patrol to outguard No. 2 is given the following route: from the south end of the ford across the railway track along the northwest edge of the cornfield to Bacon (A-3), thence down the farm road to the main road 100 yards south of the railway track, north on the main road to out-

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*Details of the Signal Corps are attached to each Infantry Regiment.

674 (contd.)

guard No. 2; return by the same route to Bacon (A-3), thence north to the river bank and back to the ford by the south bank of the river.

I inform all members of the patrol that the night signal is twenty-three, forty-one.

Discussion

If your first draft of a roster did not require the services of every man in the platoon, you would not, on that account, increase the size of any of the groups. If your first draft summed up more than the total number of corporals and privates available, you would have to reduce some of the groups if possible; otherwise, inform the captain. The platoon guide could be put in charge of the bivouac guard, thus saving one corporal.

With a platoon of 35 men, even when all your patrols are out, you will still have a sufficient number in the bivouac.

At night your trench is of no value. The ford is a defile. To oppose an enemy it is necessary to place yourself at the defile. The captain has wisely decided that you should be at the south end of the defile. Very likely he also would have ordered the sending of a double sentinel to the island, but for our own reasons we purposely caused him to omit this. There are two alternatives; either send sentinels directly from the picket to the island, or send a sentry squad to the north bank of the Blue River. A double sentinel post on the island, sent from the picket, will probably serve our purpose.

The patrol to the north side of the Blue River should make its rounds in daytime as well as at night, if the view of your sentinels is restricted. The last patrol before dark should carefully cut all telephone wires so as to isolate the houses in your front. You are in the enemy's country, and by cutting these wires before you make your changes for the night, you may prevent detailed information from reaching the enemy, or at least delay the transmission of it.

A cossack post or sentry squad is not strong enough to send out patrols, except for the necessary examination of its surroundings when it first reaches its position. A picket, on the other hand, is frequently a small support and, if strong enough, must take over reconnaissance to adjoining parts of the outpost. Such patrolling is very easy in day time, and is frequently unnecessary, as in this case. At night a patrol can easily get lost even if it has covered its route by daylight. This possibility generally can be avoided by fixing routes that are easily followed at night. Fences, roads, streams, and clearly defined ridges, or edges of woods, are very useful guides and should be used whenever possible.

In daytime, your sentinels, together with the sentinels of the cavalry detached post and outguard No. 2, can see all the ground which you propose to cover with visiting patrols during the night. We hardly ever patrol ground that can be seen by sentinels. At night, however, the intervening ground must be examined from time to time. We must keep in touch with adjoining posts and exchange information, even if it amounts to no more than an assurance that everything is quiet. Your four-man patrol passes through double sentinel twice each hour. Even though you have telephone connection, a patrol from the support will probably visit you occasionally.

The reason for starting your visiting patrols on the even hour will be apparent when you study the Seventh Problem.

If you study the final arrangements along the entire front of our support, you will realize how difficult it would be for the enemy to pierce our line unobserved with a sufficient force to be dangerous. It is a mistake to suppose that an outpost is not good merely because a patrol can penetrate it. A hostile patrol is not dangerous except in the infrequent case where it is imperatively necessary to prevent the enemy from getting any information whatever. Such cases are rare.

"In posting his command the support commander must seek to cover his sector in such a manner that the enemy cannot reach, in dangerous numbers and unobserved, the position of the support or pass by it within the sector intrusted to the support. On the other hand, he must economize men on observation and patrol duty, for these duties are unusually fatiguing. He must practice the greatest economy of men consistent with the requirements of practical security." (I. D. R. 704.)

No doubt you understand why the captain authorized you to fall back on the support in case you are attacked and forced to retire. The attack might come from the front, supported by rifle fire from troops posted along the north bank of the Blue River, west of the ford.

Whenever possible, a non-commissioned officer should be awake and on the alert at all hours of the night. Patrols must be sent periodically, and the bivouac guard must be relieved hourly. A satisfactory arrangement in the present case would be as follows: You remain on this duty until 9 P. M.; the platoon guide until 1 A. M.; and the corporal in charge of the guard from 1 A. M. until a half hour before daylight, at which time the entire picket should be awakened.

The method of night signalling prescribed by the support commander will not be found in any of our regulations. It would not be wise to have a uniform system throughout the army. It would be better if every regiment practiced two or three systems and changed them from time to time. In the present case, it is intended that the signals shall be given by tapping the butt of the rifle with the knuckles, or a stick or stone, depending upon the stillness of the night. The one who calls, strikes the butt of his rifle twice, then after a short pause, he strikes it three times; thus, tap, tap—tap, tap, tap, making the signal twenty-three. If he hears an answering signal "forty-one" he is reasonably sure that he can move in the direction of the answer and meet a member of the outpost. Or, any one hearing the signal "twenty-three" will signal back "forty-one," and be reasonably sure that whoever approaches is a friend. Such signals are particularly useful to night patrols approaching sentinels or outguards. We give it as one of many systems that can be devised, but we should by no means favor the uniform use of this particular system.

WHAT EVERY PRIVATE SHOULD KNOW

APPENDIX

The foregoing pages complete the course specified for first year R. O. T. C. by G. O. 49 W. D. 1918, but the following additional matter is added for the convenience of those institutions which have a greater number of hours for theoretic instruction at their disposal than has the average institution, or which hold "inclement weather conferences."

Appendix:—

- First Aid—in 3 lessons (A, B, C)
- Guard Duty—in 3 lessons (D, E, F)
- Flag Signaling—in 3 lessons (G, H, I)

JUNIOR DIVISION COURSE

Add to the foregoing, Guard Duty, Signaling, and First Aid, and the Theoretic Course for the Junior Division will have been fully complied with. A graduate of this course should be qualified to enter the second year of the Basic Course upon enrolling in a Senior Division unit.

APPENDIX

LESSON A

FIRST AID TO THE SICK AND INJURED[1]

675. In offering first aid to a comrade the main things are:

1. Act promptly.
2. Keep cool.
3. Make the patient feel that you have no doubt that you can pull him through all right.
4. Don't let him become discouraged. Pluck has carried many a man through what seemed the most forlorn hope.

In administering first aid proceed as follows:

1. Find out what the real trouble is.
2. Decide promptly what treatment is necessary.
3. Make the patient as comfortable as possible and handle him gently. However, do not handle him unless it will do him a benefit.
4. To facilitate the treatment, remove the clothing, cutting it or ripping it, where necessary.

676. Asphyxiation (suffocation) by Gas. Asphyxiation by gas is treated the same as in the case of drowning, omitting, of course, the operation of getting the water out of the body.

677. Belly-ache. See "Cramps."

678. *Bite of dog.
***Bite of snake.** } Either requires immediate and heroic treatment. *Lose no time.*

1st. Prevent the poison from traveling toward the heart and brain by putting on at once a tourniquet between the wound and the heart.

2nd. Suck the wound and be sure to spit out the poison and rinse the mouth afterward. It is safe, if you have no cuts or sores on the lips or in the mouth.

3rd. Enlarge the wound with a knife (in the direction of the bone, not across) to make it bleed more freely, and again suck the wound.

4th. Apply to the wound any strong acid or caustic, such as carbolic acid, lime, wood ashes or tincture of iodine, or burn it with a hot iron. Telegraph wire will do.

5th. Wash out the wound with hot water and pack with equal parts of baking soda and salt, and apply a bandage.

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[1] Because of its growing importance, the subject of First Aid to the Sick and Injured is treated in this chapter much more fully than in the Soldier's Handbook, which covers only wounds, bleeding, fractures, snake bites, rabid dog bites, shock, fainting, poisoning, drowning, sunstroke, burns, freezing and frost bites. In this chapter these subjects are marked with an asterisk (*). They are the only ones about which inspectors usually question soldiers.

6th. Then, in the case of a snake bite, loosen the tourniquet little by little, taking about half an hour so as to permit any poison that may remain in the wound to be *gradually* absorbed by the blood. In the case of a dog bite, the tourniquet is loosened at once.

After the tourniquet has been removed, the patient must rest quietly for several hours. If he feels faint, he may have a stimulant,—alcohol, coffee or tea,—*but do not give the stimulant before the poison has been removed from the wound,* because stimulants increase the heart beats and thereby hurry the poison into the blood.

A person bitten by a mad dog must take the Pasteur treatment at the earliest opportunity.

If the dog is not mad (rabid), the wound does not need treatment different from any other kind of a wound.

It is sometimes not possible to decide off hand whether a dog is sick with rabies or has fits from heat,—therefore, when bitten by a dog do not kill him, but chain him up where he cannot bite others and watch him. If he dies, his brain should be examined by a doctor for germs of hydrophobia. If he had hydrophobia, then there is still time for successful Pasteur treatment. If he did not have it, then the patient's mind is much relieved and nothing further need be done.

When bitten by a snake, kill it, if possible, and have it shown to a doctor for examination.

679. ***Bleeding.** The following comparison between the blood and the water in a city will enable you to understand easily the question of bleeding:

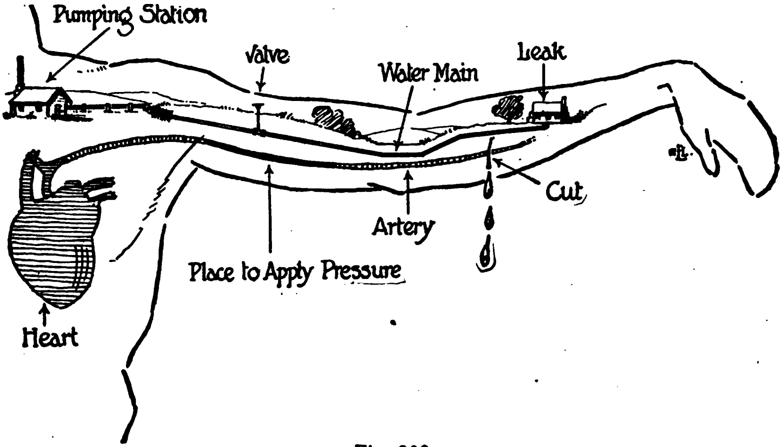


Fig. 208

The $\left\{\begin{matrix}\text{water}\\ \textit{blood}\end{matrix}\right\}$ flows from a pump called $\left\{\begin{matrix}\text{waterworks}\\ \textit{heart}\end{matrix}\right\}$ through $\left\{\begin{matrix}\text{rigid pipes}\\ \textit{elastic tubes}\end{matrix}\right\}$ called $\left\{\begin{matrix}\text{watermains}\\ \textit{arteries}\end{matrix}\right\}$. When there is $\left\{\begin{matrix}\text{a leak}\\ \textit{bleeding}\end{matrix}\right\}$ the

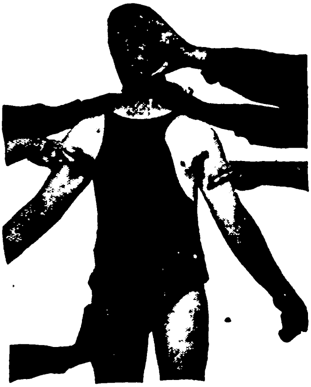


Fig. 209

Pressure with thumb at 1 checks bleeding of left side of chin, cheek and jaw.

Pressure at 2 stops bleeding from big blood tube on left side of head and neck and face.

Pressure at 3 controls bleeding in the arm pit and shoulder.

Pressure at 4 checks bleeding in arm pit and anywhere down the arm and hand.

Pressure at 5 stops bleeding of arm and hand.

Pressure at 6, on either leg, stops bleeding of leg and foot.

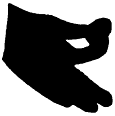
$\left\{\begin{array}{l}\text{plumber}\\ \textit{doctor}\end{array}\right\}$ stops the flow of the $\left\{\begin{array}{l}\text{water}\\ \textit{blood}\end{array}\right\}$ by $\left\{\begin{array}{l}\text{turning a key valve}\\ \textit{pressing the blood tube shut}\end{array}\right\}$ between the $\left\{\begin{array}{l}\text{waterworks}\\ \textit{heart}\end{array}\right\}$ and the $\left\{\begin{array}{l}\text{leak}\\ \textit{bleeding cut}\end{array}\right\}$ and then proceeds to repair the leak $\left\{\begin{array}{l}\text{by soldering}\\ \textit{by sewing or by bandaging}\end{array}\right\}$ He then turns on the $\left\{\begin{array}{l}\text{water}\\ \textit{blood}\end{array}\right\}$ by $\left\{\begin{array}{l}\text{opening the valve in the water main}\\ \textit{removing pressure on the blood tube}\end{array}\right\}$.

The following diagram shows where pressure with the thumb will squeeze the blood tube between the thumb and the bone.

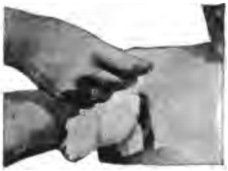
In addition to the pressure raise the leg or arm or head above the heart. This will slow the flow of the blood and lessen leakage.

However, one cannot hold the thumb forever on the blood tube, so we make an artificial thumb, called a *tourniquet,* which is a pebble or other hard object wrapped in some soft material (to prevent injury to flesh), which is pressed down on the blood tube and held in place by a strip of any material which can be tied so as to keep up the pressure.

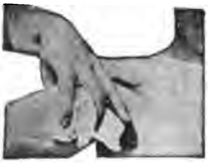
679 (contd.)



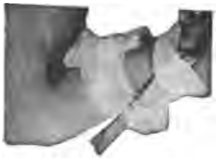
The pebble



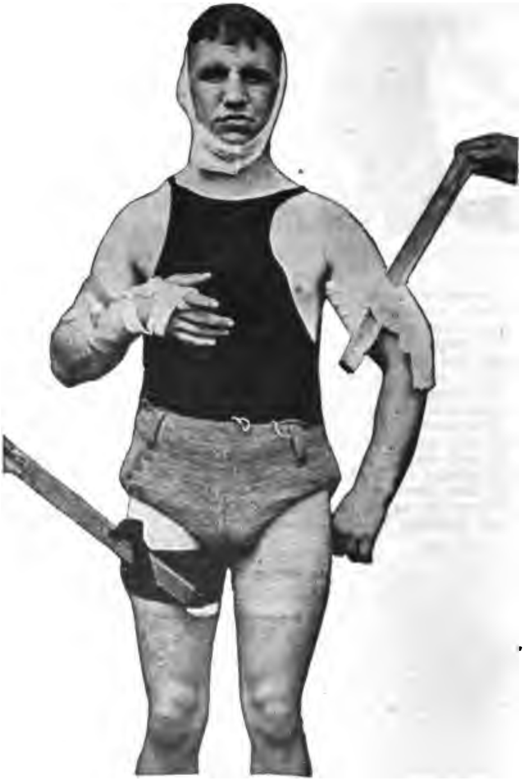
The pebble wrapped to protect the flesh



The bandage tied around over the pebble



The bandage twisted tightly by means of a windlass (stick) which is held by another bandage



This shows pressure applied by tourniquet (also called Spanish windlass) instead of the hand and by direct pressure of the First Aid Packet

Fig. 210

A tourniquet, therefore, is like the valve in a water main.

These diagrams show how a tourniquet is applied.

When no one is around to assist you, sometimes it will be possible to plug the wound in your own body with the first aid packet or with your thumb or handkerchief.

When the bleeding is slight, or is from the scalp or palm of the hand, or sole of the foot, direct pressure upon the wound itself with the pad of the first aid package will often be sufficient to stop the leak.

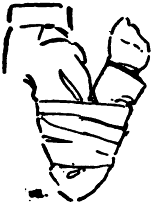


Fig. 211
Bandage to stop bleeding in arm

Nature when left alone stops the leaks with her own solder, called blood-clot, which forms in the cut ends of blood tubes and corks them or seals them up until a scar forms a permanent seal.

When bleeding is inside the body (and unseen), in the chest or belly, we know it first by the evidence of the wound and second by the great paleness and faintness of the patient.

What should you do for unseen internal bleeding? Let the patient lie flat and notify a doctor. Furthermore, let the patient alone; and don't let others touch him.

Should he be allowed to sit up or move? No. Why? Because it will quicken the heart and increase the leak and so hasten the patient's death.

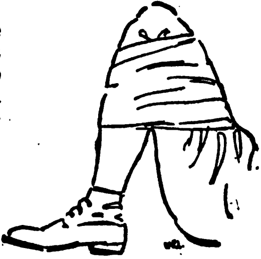


Fig. 212
Bandage to stop bleeding in foot

If he has fainted, should you revive him with cold water, ammonia, alcohol, hot coffee, slapping the face, etc.? NO. Why? Because all these things will make him bleed to death faster.

Remember, fainting is nature's best remedy, because it slows the leak, quiets the patient and so lessens the bleeding.

In any case of bleeding *never give stimulants until after the bleeding has been stopped.* When the bleeding has stopped get a doctor.

Fig. 218
Arm blown off at elbow
NOTICE:
1. Bandage on stump.
2. Tourniquet below to check bleeding.
3. Arm held upright to lessen bleeding.
4. Strap supports arm and also acts as a tourniquet.

What are the dangers from a tourniquet? First, gangrene, that is the death of a limb. What causes gangrene? The limb dies from lack of blood, which has been cut off by the tourniquet.

How do you know when to remove the tourniquet in time to prevent gangrene? Watch the toes and finger tips. If they become blue-black and remain white when pinched loosen the tourniquet, but plug the wound first.

What is the other danger? Injury to nerves from pressure which may cause palsy (paralysis). However, that will pass off after a few days.

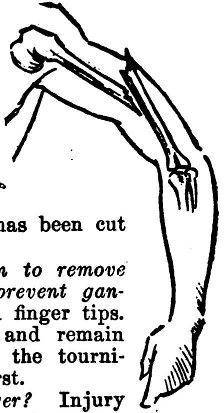


Fig. 214
Compound fracture

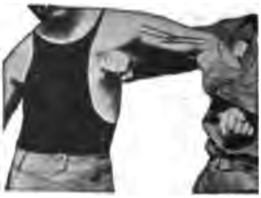
680. *Broken Bones (Fractures). A broken bone or fracture is known by pain in a particular place that hurts on movement or when touched. Also, by a deformity or a movable lump, caused by the broken end of the bone.

What is the danger of not handling a broken bone properly? Careless handling may cause the broken ends to pierce the flesh and stick out through the skin. This is called a *compound* fracture, and is serious, because it adds fuel to the fire by making a doorway for germs to enter, which may cause death or the loss of the limb. Furthermore, careless handling may make the bones grow together in a bad position, causing a deformity.

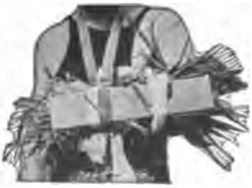
The best way to treat a broken leg or arm bone is as follows:

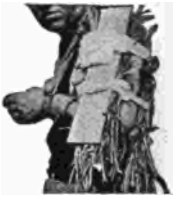
Pull until the ends come together. You can tell this by the relief the patient feels and by the limb assuming its proper length,—that is, the same length as the other side.

To keep the ends of the bones in place, fasten to the limb two boards or any other substance that will not bend. Such boards or other substance



Break of UPPER arm bone. Pulling the broken bones out of the flesh and into place





TREATMENT FOR BREAK OF UPPER ARM BONE

1. Padding of grass.
2. Splints put on FRONT and BACK.
3. Splints extend beyond elbow joint.
4. Arm is supported by a sling.

TREATMENT FOR BREAK OF BOTH BONES OF LOWER ARM

1. Plenty of grass padding to protect the flesh.
2. The splints are put FRONT and BACK and bound snugly. The hand is included.
3. The whole dressing is held up by a sling.

Fig. 215

are called *splints*. They act as artificial bones. All splints should be well padded with some soft material like raw cotton, cotton waste, grass (be sure the grass contains no biting insects), leaves, hay or excelsior, to prevent pressure of the soft flesh on the ends of the bones.

When the thigh bone is broken, put a splint from the arm to the ankle and use the other leg as a splint. Fasten them by bandages, belts, gun sling, etc., passed around the chest, waist, hips, knees and ankle.

When an arm is put in a splint, hang the hand and forearm in a sling. It will give much relief.

When the jaw is broken, the upper jaw makes a good splint.

When the collar-bone is broken this makes a good treatment: Fig. 217.

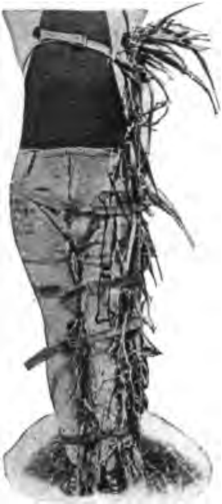


Fig. 216

POINTS TO NOTE:

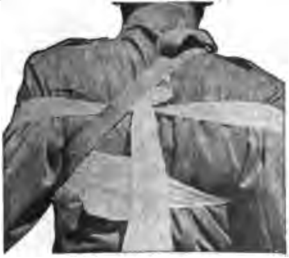
Plenty of grass between the legs.

Plenty of grass between injured leg and splint.

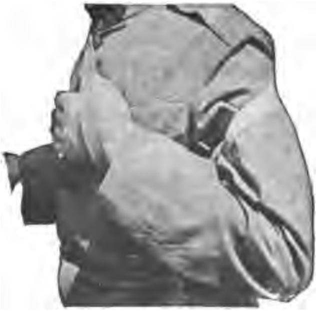
Splint extends from arm pit to foot.

The other leg is used for a splint.

Plenty of strapping to keep leg quiet.



BROKEN COLLAR BONE
The left collar bone is broken. Therefore, pull BOTH shoulders backward away from the breast bone (same action as for broken arm bone) and hold in position with bandage or straps.



BROKEN COLLAR BONE (LEFT SIDE)
When the shoulders are pulled back then the hand is bound close to the chest high up. This prevents it from flopping and so twisting the broken ends of the collar bone.

Fig. 217

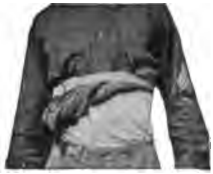


Fig. 218

TREATMENT FOR BROKEN RIBS, (LEFT SIDE)

The patient breathes all the air out of the chest and at that moment the strap is buckled tightly. This prevents the broken ends of the ribs from tearing the flesh or the lungs. Notice the roll of shirt which acts as a pad.

A broken rib is treated by putting a wide strap or bandage around the chest and drawing it tight while all the air is breathed out.

This keeps the rib quiet and the man will breathe with his belly instead of his chest.

A broken skull usually makes a man unconscious and may cause death. It is recognized by a wound or swelling of the scalp and a dent in the skull. A doctor should be called at once. Always examine an unconscious man for injury to the head.

***681. Burns.** If clothing sticks to the burn, do not try to remove it, but cut around it. Prick blisters at both ends with a perfectly clean needle, and remove the water by gentle pressure, being careful not to break the skin.

A good application for a burn is carbolic acid dissolved in water (a teaspoonful in a pint of water), or tincture of iodine dissolved in water (one teaspoonful in a pint of water, to which is added as much salt as will cover a dime), or olive oil, vaseline or butter.

Lacking the remedies named above, ordinary *baking* soda or flour may be dusted on the unbroken skin, or a cloth dampened with salt water that has been boiled, to which may be added the same amount of whiskey or brandy as there is water.

Another application for burns recommended by some, is the scraping of a raw potato, renewed when it feels hot.

Different burns should be treated as follows:

Sunburn,—treat with olive oil, vaseline or butter, or with glycerine or witchhazel, applying with a dampened cloth.

Quicklime or lye,—treat with vinegar.

Carbolic acid,—treat with alcohol.

Other acids,—treat with baking powder or lime water.

Burning clothes, particularly that of women and children, has been the unnecessary cause of many horrible deaths, either from ignorance of the proper means of extinguishing the flames, or from lack of presence of mind to apply them. A person whose clothing is blazing should (1) immediately be made to lie down—be thrown if necessary. The tendency of flames is upward, and when the patient is lying down, they have not only less to feed upon, but the danger of their reaching the face, with the possibility of choking and of ultimate deformity is greatly diminished. (2) The person should then be quickly wrapped up in a coat, shawl, rug, blanket or any similar article, preferably woolen, and never cotton, and the fire completely smothered by pressing and patting upon the burning points from the outside of the envelope.

The flames having been controlled in this way, when the wrap is removed, great care should be taken to have the slightest sign of a blaze immediately and completely stifled. This is best done by pinching it but water may be used. Any burns and any prostration by shock should be treated in the manner prescribed for them.

682. **Bruises.** The best treatment for a bruise is heat.

A hot brick or a bottle of hot water wrapped in cloth, towels wrung out of hot water, or even an electric light bulb, will give much relief.

However, always remember this: Never put the hot object on the bare skin—always wrap the source of heat in a thick cloth to hold the heat in and at the same time protect the skin. If not practicable to do this wrap the source of heat, then spread a towel over the skin before applying the hot object.

If you use an electric bulb, watch it closely, as it will char and possibly set things on fire.

The above treatment is also excellent for lumbago, stiff neck, and stiff muscles.

A tub bath as hot as you can stand it is fine for refreshing tired, stiff muscles. It is also good for lumbago.

683. **Chiggers.** Apply kerosene oil. Bacon is also excellent, and so is butter or lard with salt.

LESSON B

684. **Choking. Foreign body in the throat.** The common practice of slapping the back often helps the act of coughing to dislodge foreign bodies in the windpipe.

If this does not succeed, have the patient lie over a chair with his head down low or hold him as in the first step to revive a drowning person and have him cough. When in either of these positions have some one slap him on the back so as to induce coughing.

The above failing, give him a large amount of warm water with a little salt, mustard or baking soda in it, and then have him put his finger in his throat so as to induce vomiting which will often bring up the obstruction.

In children, and even in adults, the expulsion of the body may be facilitated by lifting a patient up by the heels and slapping his back in this position.

If none of the methods above described are successful, summon a physician, taking care to send him information as to the character of the accident, so that he may bring with him the instruments needed for removing the obstruction.

685. **Colds.** Put on warm, dry clothing. Wash the nose inside and gargle with hot salt water. Drink freely of hot ginger tea; cover well at night; loosen the bowels.

686. **Concussion of the brain** is treated the same as in the case of internal bleeding. Keep the patient quiet, lying on his back, with clothing loosened. Get a doctor.

687. **Coughing.** A hot gargle of salt water, some of it sniffed into the nose, will frequently relieve a cough due to mucous in the throat. A plaster of mustard, flour and vinegar made into a paste, and applied on a piece of cloth on the chest, just below the neck, will relieve a throat cough.

Breathing in steam from a bucket of hot water containing vinegar is good.

688. **Cramps.** Mix pepper and ginger, or tobasco, or Worcestershire sauce in very hot water and drink. Also, hot ginger ale or hot water containing a teaspoonful of witch hazel is good.

Repeat about every hour.

Apply hot bandages to the belly. A hot stone or bottle of hot water wrapped in cloth, makes a good warmer.

Take a purgative, which will usually expel the offending cause, generally too much undigested food.

689. **Cuts.** Small cuts should be treated with tincture of iodine or washed with alcohol (bay rum or listerine will do) and bandage up. Large wounds may be similarly cleaned and then closed by adhesive plaster.

690. **Diarrhoea.** Apply warm bandages to the belly. Some woodsmen recommend the following: Fire brown a little flour to which two tea-

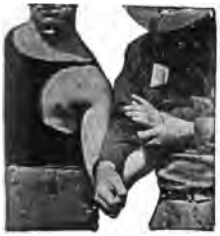
spoonfuls of vinegar and one teaspoonful of salt are added; mix and drink. They claim this is a cure nine cases out of ten. A tablespoonful of warm vinegar and teaspoonful of salt will cure mose severe cases. Also, hot ginger ale or hot water containing a teaspoonful of witch hazel is good. Repeat any of the above drinks about every hour.

Take a purgative, which will usually expel the offending cause, generally too much undigested food.

691. **Dislocations.** The place where two bones come together is called a joint.

The following diagrams show the usual methods of replacing dislocations:

TO PUT THE ARM BONE BACK INTO THE SHOULDER SOCKET

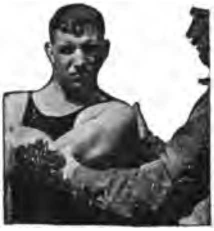


1st MOVE

Rest your weight at elbow, pulling downward, until the muscles at the shoulder are tired and will stretch.

2nd MOVE

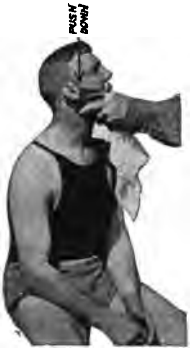
Swing the elbow across, close to the chest, and place the hand on other shoulder.



3rd MOVE

Keep the elbow close to the chest and bring the hand forward as if held out for a penny.

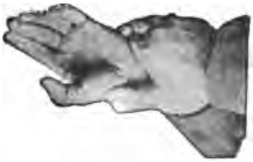
This should twist the bone into the socket.



RELOCATING THE JAW

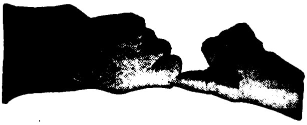
When the jaw bone is out of place, the man cannot shut his mouth.

Put both thumbs (protected by a handkerchief) on the lower teeth and with the forefingers at the angles of the lower jaw push down in the back of the jaw.



RELOCATING THUMB

When the thumb bone is dislocated it must be PUSHED into place—not pulled.



RELOCATING FINGER

Pull the finger bone back into place.

When two bones forming a joint are knocked apart, it is called a *dislocation,* and the bones are said to be *out of joint.*

The first sign of a dislocation is the accident.

The second sign is immediate interference with the motion of the joint and awkwardness in using the limb.

The third sign is deformity of the joint,—it looks queer when compared with the same joint on the other side.

If you are unsuccessful after trying several times to replace a dislocation, get a doctor.

If no doctor is available, make the man sick by having him drink some warm salt water and then put his finger in his throat.

When he vomits the muscles and ligaments (tissue connecting the joints) will relax and you may be able to get the bone back in place.

After replacing the bones put the joint at rest with a large compress and bandage.

When uncertain as to whether you have to deal with a broken bone or a dislocated joint, give treatment for a broken bone, because rest and quiet for the injured part are good in either case.

692. *Drowning. *Rescuing.* Approach the drowning man from behind, seizing him by the coat collar, or a woman by the back hair, and tow at arms length to boat or shore. Do not let him cling around your neck or arms to endanger you. Duck him until unconscious if necessary to break a dangerous hold upon you; but do not strike to stun him.

A drowning person *does not* come to the top three times before giving up.

Reviving. When a person is apparently drowned he is unconscious and not breathing because his lungs are full of water and his skin is blue and cold because no air is getting into his blood to redden it and warm it; *remember* the heart does not stop until some time after the breathing stops. If we can get air into the blood and start breathing again before the heart stops we can save the patient's life. If we cannot get the breath started in time the heart stops and the patient is then dead.

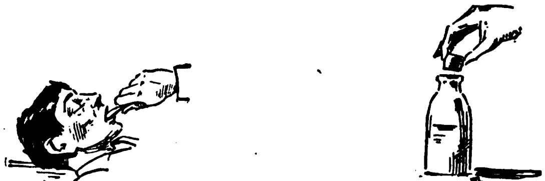
Our problem then is this:

1. To get the water out of the lungs.
2. To get the air into the lungs and start the man breathing before the heart stops.

Emptying the lungs is precisely similar to emptying a bottle.

The lungs are the bottle, the wind-pipe is the neck of the bottle and the cork of the bottle may be the tongue turned back in the throat or mud and leaves from bottom of the pool and bloody froth in the nostrils. We therefore—

1. { Pull out the cork.
Remove mud, mucous, etc., and pull the tongue forward.



Pulling out the cork
Fig. 220

2. Turn the bottle neck down to pour out the contents.
Place the patient's head lower than his chest so the water will run out.

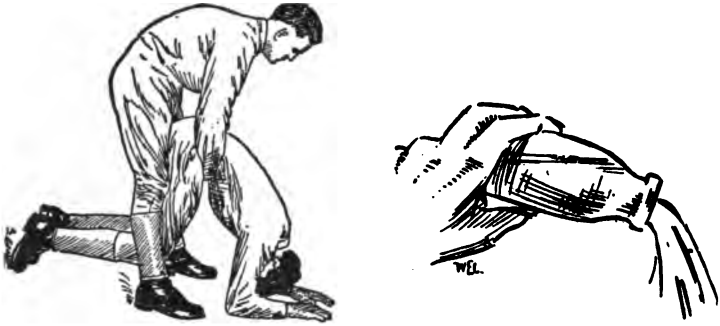


Fig. 221

Then lay the patient on a blanket, if possible, and on his stomach, arms extended from his body beyond his head, face turned to one side so that the mouth and nose do not touch the ground. This position causes the tongue to fall forward of its own weight and so prevents it from falling back into the air passages. Turning the head to one side prevents the face coming into contact with mud or water during the operation.

Kneel and straddle the patient's hips, facing his head.

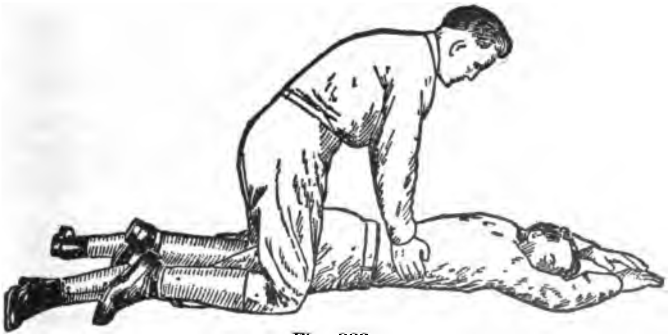


Fig. 222

Roll up or rip off the clothing so as to get at the bare back.

Locate the lowest rib, and with your thumbs extending in about the same direction as your fingers, place your spread hands so that your little finger curls over the lowest rib. *Be sure to get the hands well away from the back bone,*—the nearer the ends of the ribs the hands are placed without sliding off, the better it is.

Then with your arms *held straight,* press *down* SLOWLY AND STEADILY on the ribs, bringing the weight of your body straight from your shoulders. *Do not bend your elbows and shove in from the side.*

Release the pressure suddenly, removing the hands from the body entirely, and thus allowing the chest to fill with air.

Wait a couple of seconds, so as to give the air time to get into the blood. This is most important.

Repeat the pressure and continue doing so, slowly and steadily, pressing down at the rate of ordinary breathing. That is to say, pressure and release of pressure (one complete respiration) should occupy about five seconds. Guide yourself by your own deep, regular breathing, or by counting.

Keep up for at least one hour the effort to revive the patient; and much longer if there is any sign of revival by way of speaking, breathing, coughing, sneezing or gurgling sounds.

Do not stop working at the first signs of life, but keep it up until the patient is breathing well and is conscious. If you stop too soon he may stop breathing and die.

Persons have been revived after two hours of steady work, but most cases revive within about thirty minutes.

If you are a heavy man, be careful not to bring too much force on the ribs, as you might break one of them.

In the case of women or thin persons place a roll of clothing under them at the waist line before beginning the pressure.

If you happen to be of light build and the patient is a large, heavy person, you will be able to apply the pressure better by raising your knees from the ground, and supporting yourself entirely on your toes and the heels of your hands, properly placed on the floating ribs of the patient.

Do not attempt to give liquids of any kind to the patient while he is unconscious, for he cannot swallow them. They will merely run into his wind-pipe and choke him, and, furthermore, it will take up valuable time.

However, after the patient has regained consciousness you may give him hot coffee or hot whiskey, punch or aromatic spirits of ammonia (a teaspoonful in water).

Then wrap up the patient warmly in hot blankets with hot water bottles, and take him to the nearest hospital or put him to bed and send for a doctor. Why? Because the dirty water in the lungs has damaged the lining and the patient is in danger of lung fever and needs care and nursing.

Aromatic spirits of ammonia may be poured on a handkerchief and held continuously within about three inches of the face and nose. If other ammonia preparations are used, they should be diluted or held farther away. Try it on your own nose first.

The above method of artificial respiration is also applicable in cases of electric shock, suffocation by gas and smoke.

693. **Drunkenness.** Give large doses of vinegar and water to which some ammonia has been added. Taste before giving. If too sour, add ammonia; if too much ammonia, add water.

Aromatic spirits of ammonia,—a teaspoonful in half a cup of water, repeated every fifteen minutes, is also a good remedy.

Cause vomiting by tickling the throat with the finger.

Follow by a hot sweat bath and forced exercise.

A cup of hot coffee after vomiting will aid to settle the stomach and clear the mind.

Cold water dashed into the face or a cold shower has a sobering effect.

694. **Earache.** Put a teaspoonful of salt into a quart of water and add 6 teaspoonfuls of tea. Boil it. As soon as it is cool enough to stand the finger, drip some into the nostrils until it falls into the throat. Clear out the nose and throat by sniffing,—*do not blow* the nose,—and then gargle with the rest of the remedy as hot as can be taken, holding each mouthful well back in the throat. This will often open up the tubes running from the ears to the throat, and relieve the pressure against the ear drum. In addition, a little hot oil may be dropped into the ear. Repeat the treatment in one-half an hour if not successful first time.

695. **Ear, foreign body in.** Lay the head over, with the affected ear up, and pour in some warm oil or soap suds. This will float the thing up, unless it be a vegetable such as a grain of corn or a bean. Turning the affected ear down and then jumping, jerking the head, or pounding it gently, may dislodge it.

A little peroxide of hydrogen poured into the ear will often dislodge the substance, especially if it be wax.

In case of an insect, a bright light held near the ear will often cause it to leave the ear to go to the light.

696. **Electric Shock.** Failure of respiration following an electric shock by lightning or live wire is treated the same as in the case of drowning, omitting, of course, the operation of removing the water out of the lungs.

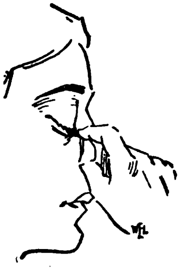
Do not try to pull a man away from a live wire until you have put on rubber overshoes or gotten a *wooden* stick with which to get the wire away from him. Otherwise you will yourself get a shock.

697. **Eye, foreign body in.** Close the eye for a few moments and allow the tears to fill the eye; upon opening it, the body may be washed out by them.

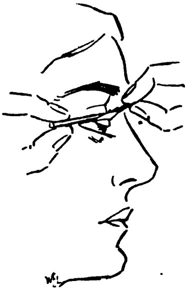
Never rub the eye.

The foreign body can often be removed by keeping the eye open with one hand and splashing water into it with the other, or by dipping the eye into clean water while holding the eyelid open with the hand.

If the body lies under the lower lid, make the patient look up, and at the same time press down upon the lid; the inner surface of the lid will be exposed, and the foreign body may be brushed off with the corner of a handkerchief.



If the body lies under the upper lid, (1) grasp the lashes of the upper lid and pull it down over the lower, which should at the same time, with the other hand, be pushed up under the upper. Upon repeating this two or three times, the foreign body will often be brushed out on the lower lid. (2) If this fails, the upper lid should be turned up; make the patient shut his eye and look down; then with a pencil or some similar article press gently upon the lid at about the middle, and grasping the lashes



with the other hand, turn the lid up over the pencil, when its inner surface will be seen, and the foreign body may readily be brushed off.

If the body is firmly stuck in the surface of the eye, a careful attempt may be made to lift it out with the point of a needle. If not at once successful, do not try again, as you may injure the sight.

Lime, plaster or whitewash in the eye should be washed out with a very weak mixture of vinegar and water. Acids in the eye may be washed with baking soda in water. Olive oil will also afford relief.

After the removal of a foreign body from the eye, a sensation as if of its presence often remains. People not infrequently complain of a foreign body when it has already been removed by natural means. Sometimes the body has excited a little irritation, which feels like a foreign body. If this sensation remains over night the eye needs attention, and a surgeon should be consulted; for, it should have passed away, if no irritating body is present.

After the removal of an irritating foreign body from the eye, salt water should be poured into it, then butter, lard or olive oil may be used for a salve.

698. **Eyes, sore or inflamed.** If possible, see a doctor at once. If none be available, add to a quart of water a heaping teaspoon of salt and six of tea (preferably green tea), and boil for five minutes. While still hot bathe the eye every half hour, then bathe every hour for several hours. If the eye remain red after relief is obtained, make the eyewash ice cold.

Another remedy is to bind on cloth soaked with witch hazel and leave on over night. Wash well in morning with warm water.

699. **Famishing.** Do not let a starved person eat much at a time. Prepare some broth, or a gruel of cornmeal or oatmeal thoroughly cooked, and feed but a small spoonful, repeating at intervals of a few minutes. Give very little the first day, or there will be bloating and nausea.

700. **Fatigue, excessive.** Take a stimulant, or hot drink when you get to camp (but not until then), and immediately eat something. Then rest between blankets to avoid catching cold.

701. **Feet, sore and blistered.** See bottom page 287.

702. **Fevers.** See the doctor.

703. **Fish Hook.** If a fish hook gets caught in the flesh push it on through and when the end sticks out, break off the hook and pull it out the other way. Put tincture of iodine on the wound and bandage.

704. **Fits.** The man falls over suddenly unconscious in a convulsion, which continues until he is blue in the face, when he gradually quiets down and regains consciousness. He is liable to injure himself by the fall and by biting his tongue. Put a stick or cork between his teeth and let him lie quietly undisturbed. Don't try to hold him down or make him sit up. He will come to no harm on the floor and you cannot stop the fit. Ammonia on a handkerchief held under the nose to smell will assist reviving consciousness. Put him in the hospital at once.

705. ***Fracture.** See, "Broken Bones."

706. ***Freezing.** If a man is overcome by the cold, do not take him into a warm room, or heated tent. Put him into a cool room without draughts and get a doctor at once. Meanwhile loosen his clothing and rub arms and legs towards the heart with cold water and a towel or sponge, using pressure.

When he revives give him hot drinks and wrap him up well in hot blankets and put him in the hospital.

When freezing to death a man feels overcome with sleepiness and stupor. Take a switch or stick and beat him unmercifully. Remember that falling to sleep means death.

LESSON C

707. *Frost-bite. The best way to get frost-bitten is to have on damp clothing, such as wet shoes and socks or mittens. The first feeling of frost bite is numbness, and the first sign is marble whiteness.

Treatment. Rub the frozen part briskly with snow or ice cold water, if the frost-bite has just occurred. If it has been frozen more than fifteen minutes, *rub very gently* with snow, cold water or coal oil (kerosene). If you rub hard, it will break the frozen flesh.

Returning pinkness is a sign of thawing; if the parts turn a dark color, see a surgeon at once, for it means gangrene (death of the flesh).

When thawed out apply plenty of oil, tallow or vaseline.

If gangrene has set in and no doctor is available, then treat as a burn.

By all means keep away from heat. To toast frostbitten fingers or toes before a fire is liable to result in chilblains.

708. Headache. Among troops headache is usually due to intestinal indigestion, combined with a congestion of the stomach. Take a tablespoonful of Worcestershire sauce or 5 drops of tobasco sauce in a tumbler of hot water as a drink and put a small piece of soap up into the bowel to cause a movement.

709. Head, how to keep cool. By placing wet, green leaves inside of hat.

710. Heat exhaustion. The man falls out in a faint while marching, or on fatigue or parade. He looks pale, his body is clammy and cold, his breathing is sighing and heart fluttering. *What is the matter?* His heart is weak from poisons in the blood, usually alcohol, but often too much carbonic gas and too little oxygen. This occurs when men are soft-muscled; so, young soldiers, recruits and fat soldiers and especially those who drink alcohol, use drugs or smoke or chew tobacco while hiking, are the first to have it.

Treatment. Loosen the man's clothing, remove his pack, lay him on his back in the shade, with head and shoulders lower than his hips and raise his feet in the air. This will make the blood flow to the heart and brain. If he has fainted, slap the bare chest with the hand or a wet towel and briskly rub the arms towards the heart. If he does not revive, apply hot bottles, or bricks to the chest and abdomen, and ammonia to the nose, as a smelling salt. Do not give stimulants until he is conscious. He should ride in the ambulance, or go to the hospital.

711. Heart burn or indigestion.
Hiccoughs. } A tablespoonful of Worcestershire sauce, or 5 drops of tobasco sauce in a tumbler of water.

712. Itch. When due to insects or vermin, use soap, hot water, and kerosene oil as a wash.

713. Ivy poison can be relieved with a cloth soaked with baking soda and water or with lime water.

714. **Lightning.** A man struck by lightning is treated the same as in the case of drowning, omitting, of course, the operation of getting the water out of the lungs.

715. **Lumbago.** Same as treatment for bruises.

716. **Needle.** When a needle gets lost in the flesh, push it on through. Put tincture of iodine on the wound.

717. **Nose, foreign body in.** If it cannot be sneezed out, lean the head back and pour a little oil into the nostril. Then sniff and blow the nose alternately. If this is not successful, take a lead pencil and try to push the object straight back into the throat. This must be done very gently.

718. **Piles.** Put a little piece of ice in the lower bowel and hold it against the piles. See a doctor.

719. ***Poison.** When poison has been swallowed, cause the patient to take a large quantity of luke-warm water and make him vomit by putting his finger in his throat. Repeat this and then have him swallow the white of two eggs or some milk into which raw flour or corn-starch has been stirred.

If you know he took bichloride of mercury, you may increase the amount of eggs and give one-half glass of weak lime water.

If you know he took carbolic acid, give him alcohol (pure alcohol or in the form of gin or whiskey) and plenty of it in order to neutralize the acid.

Get a doctor as soon as possible, and save the vomit and poison not taken, for him to see.

720. **Poultices.** Poultices may be used instead of hot towels for bruises, felons, boils, carbuncles, muscular rheumatism, lumbago, stiff neck, etc. They are easily made of cornmeal or oatmeal. Mix by adding a little at a time to boiling water and stirring to a thick paste; then spread on cloth. Renew from time to time as it cools.

To prevent a poultice from sticking, cover the under surface with clean mosquito netting or smear the skin with oil.

721. **Rheumatism.** Same as for bruises.

722. **Scalds.** Apply at once common baking soda or olive oil and cover with a bandage. To sprinkle with flour is also good.

723. **Scratches of cats and other animals.** Apply tincture of iodine or wash with soap and water.

724. ***Shock.** In case of collapse following an accident, treat the accident; then treat as for fainting. Apply hot plates, stones or bottles of hot water, or an electric light wrapped in towels over the stomach. Wrap up warmly. Keep the patient quiet, in the dark, and send for a doctor.

725. **Snow or sun blindness.** Smear the nose and face about the eyes with charcoal, and wear a cloth over the face with small holes for the eyes.

726. **Sore throat.** Gargling with hot strong tea or hot water and salt is often effective.

Listerine diluted in water and used as a gargle is also good.

Peroxide of hydrogen is a good gargle.

727. **Spider bite.** Apply a cloth dampened with alcohol or weak ammonia and water.

728. **Suffocation by gas.** See "Asphyxiation by gas."

729. **Sprains.** The regular medical treatment is to plunge a sprained ankle, wrist or finger, into water as hot as can be borne at the start, and to

raise the heat gradually thereafter to the limit of endurance. Continue for half an hour, then put the joint in a hot wet bandage, reheat from time to time, and support the limb in an elevated position,—the leg on a chair or stool; the arm, carried in a sling. In a day or two begin gently moving and kneading the joint, and rub with liniment, oil or vaseline.

As a soothing application for sprains, bruises, etc., the virtues of witch hazel are well known.

730. **Stiff neck and stiff muscles.** Same treatment as bruises.

731. **Stings.** Stings of bees, jelly fish and other stinging animals are treated with a very weak solution of ammonia in water applied as a lotion. Or apply a very weak solution of carbolic acid in water, a strong solution of baking powder, a slice of crushed raw onion, a moist quid of tobacco, witch hazel, listerine, or a paste of clay.

Before applying any of these remedies, extract the sting, if left in the wound. Also, work out as much of the poison as possible by massaging and sucking the wound.

732. **Sun-burn.** Treat with witch hazel or listerine or vinegar well diluted with water.

733. ***Sunstroke.** In sunstroke the man has a blazing red face, dry, burning hot skin; agitated heart; snoring breathing; a high fever, and is unconscious and delirious. *What is the matter?* The part of the brain which regulates the heat of the body is overcome by the heat and loses control,—the man is entirely too hot all the way through.

Treatment. First of all remove the pack and shoes and loosen the clothing. Then souse the man, clothing and all, with water. Lay him in the shade and fan him, keeping him covered and wet. This will cool him off without chilling too much. If possible, rub the chest and legs, but not the belly, with ice.

734. **Ticks.** Do not pull them off when biting as it will leave the head in the flesh. Apply kerosene oil on a pad. It will make them drop out.

735. **Thirst.** Allow the sufferer only a spoonful of water at a time, but at frequent intervals. Bathe him if possible.

To quench thirst in the field. Don't drink too often. It is better to rinse out the mouth often, taking a swallow or two only. A pebble or button kept in the mouth will help quench that dry and parched tongue.

736. **Toothache.** Hold warm vinegar and salt in mouth around the tooth until the pain ceases, or plug the cavity with cotton, mixed with pepper and ginger.

737. ***Wounds.** Wounds may be made in every degree of size, from the jab of a splinter to the loss of a part of the body from shrapnel.

No matter what form of the wound or the cause, we know the following fact to be of the utmost importance: A wound without germs in it will heal rapidly without pain, redness, heat, or pus and the patient will have no fever. He will eat his regular meals and act as though well.

Such wounds we see made by surgeons when operating. On the other hand, wounds infected with germs are painful, hot, angry, red, and swollen and form large quantities of pus or matter.

What is pus? Pus is a mixture of germs, blood and the flesh that they have destroyed. This pus prevents wounds from healing and often burrows under the skin, forming abscesses which cause fever and chills, and the pus enters the blood causing delirium and death.

737 (contd.)

Our one aim in treating wounds is to keep out germs.

How do we do it?

With the first aid packet.

The first aid packet consists of two gauze compresses sewed to two cotton bandages. They are sealed in wax paper. There are also two safety pins wrapped in wax paper. These articles are placed in an air-tight metal case which protects them from contamination.

Now, the one important fact about this first aid packet is that the bandage compresses and safety pins have been *sterilized,*—that is, they contain no living germs of any kind. It is, therefore, perfectly safe to put on a wound, *provided the pad touches the wound before it touches anything else and provided that the wound has not been handled.* Therefore, do not wash a fresh clean wound.

CAUTION. Have the wound ready before you open the packet. Do not touch the gauze pad with ANYTHING. Do not breathe on it, and be especially careful not to cough or sneeze over it. These things put germs on it which will grow in the wound.

By observing these instructions you may save a man's life. By not observing them, you may cause his death, or cause him much pain and suffering.

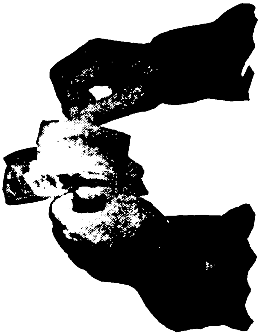


Fig. 223

FIRST AID PACKET

After the removal of packet from tin can, open the wax paper and hold the package as shown.

1. Left hand holds the wax paper.
2. Right hand holds the bandage.

The life of a wounded man is often in the hands of the first one who attends him.

It is said that since the adoption of the first aid packet by armies, it has done more than everything else to save the lives of those wounded in battle by preventing the infection of wounds.

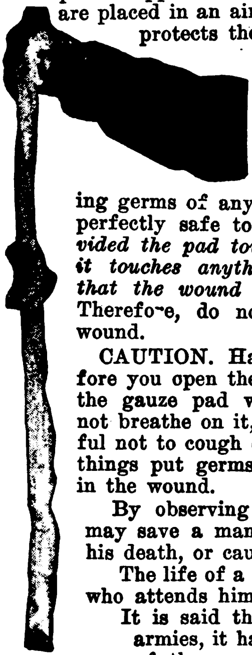


Fig. 224

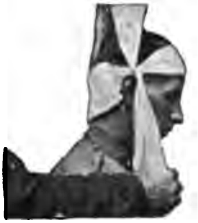
FIRST AID PACKET

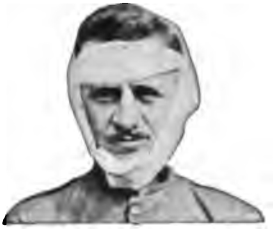
Shake out packet with right hand so that the pad (or compress) does not touch anything until placed on the wound.

In an emergency a pad from any kind of cloth may be boiled for ten minutes to kill the germs, the water drained off to allow it to cool, and then placed on the wound. Or, the pad may be held over a clear fire until it is fairly scorched; then let it cool. A little charring of the surface will do no harm. Any kind of bandage may then be used to hold it in place.

When a bullet strikes a man first, the wound is clean cut and germ free and it will heal rapidly. If, however, it strikes something first, and bounces off (riccochets) and then strikes a man, it will be knocked into an irregular shape and, therefore, cause a ragged wound with much bruising. What is more important, such a bullet will carry germs into the wound from the object struck, and almost surely some shreds of clothing.

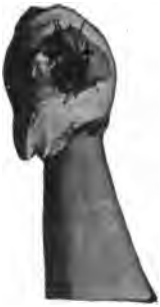
BANDAGE TO WOUNDS OF HEAD



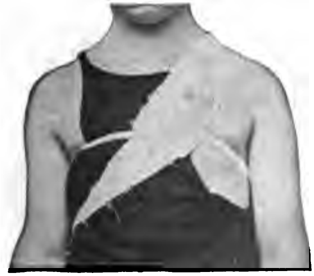


1. Place pad on wound.
2. Encircle greatest thickness of the head by the bandages.
3. When the bandages pass above the ear turn and go in the right angle direction. Put on as if tying up 5 lb. sack of sugar.

BANDAGING PALM OR HAND

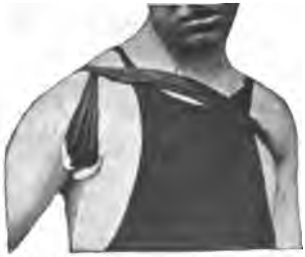


1. Put pad of the first aid packet on the wound.
2. Place a large ball of grass or other substance over pad, which is grasped by the hand.
3. Bind bandage tightly over the fist.



BANDAGE TO WOUNDS OF BREAST

The pad of the bandage is placed on the wound of the breast and the ends form a figure 8 of both shoulders and tie in front. A shirt pulled over and pinned to the pad will fix it.



BANDAGE TO WOUND OF (RIGHT) ARM-PIT

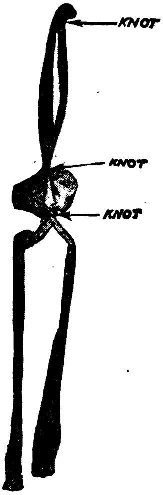
Apply as shown.

Fig. 225

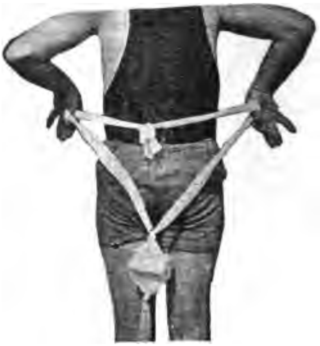
When a wound is infected it is extremely difficult to kill the germs (disinfect). Such a wound, before applying the first aid dressing should be painted with a tincture of iodine, or alcohol or be well washed with boiled salt water.

The following illustrations show various applications of the first aid packet:—

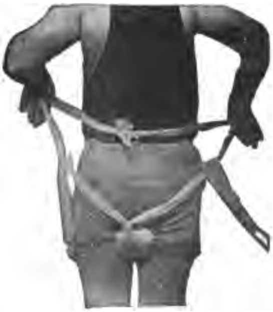
A suspensory bandage made from the two bandages of the first aid packet, or any other two bandages.



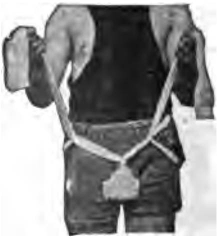
Making the knots
(Note well where the knots are made)



1st step
in applying the bandage



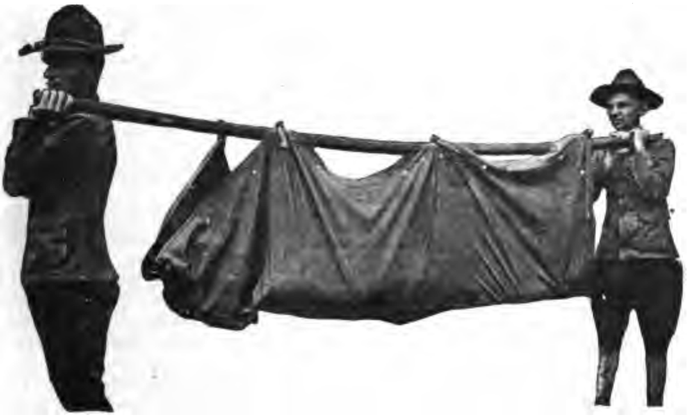
2nd step
Pass the loose ends between the legs and then through the loops on each side



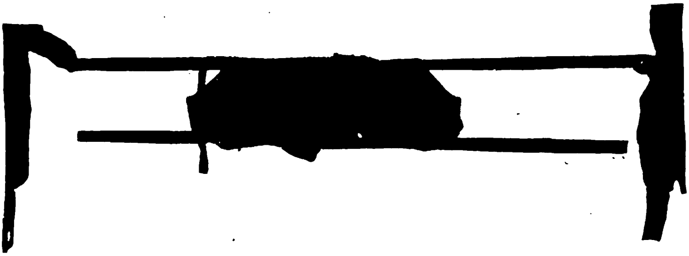
3rd step
Catch hold of the loose ends and after the pad is adjusted to the injured spot, tie them in front like a belt

Fig. 226

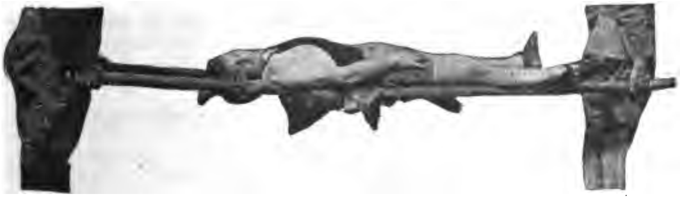
The illustrations below show improvised litters.



Litter made of one-half shelter tent, three shelter tent pins and one tent or other pole



Litter made of two poles, two coats and one belt. The coats are buttoned and the sleeves turned inside out, the poles being run through the sleeves. The belt is used as a head rest



The coat litter in use

Fig. 227

LESSON D

GUARD DUTY

ITS IMPORTANCE

738. *Is guard duty considered important?*

Yes; it is one of the soldier's most important duties.

How is the manner in which guard duty is performed looked upon in all armies of the world?

In all armies of the world the manner in which guard duty is performed is looked upon as an index to the discipline of the command and the manner in which other duties are performed.

Why is it that guard duty is considered so important?

Because upon the proper performance of guard duty depends not only the enforcement of military law and orders, but also the security of persons and property under the charge of sentinels.

Is the importance of guard duty increased during time of war?

Yes; for then the very safety of the Army depends upon the vigilance of the sentinels, who are required to watch that others may rest and sleep and thus refresh themselves from the labors of the day, and thereby be prepared to meet any emergency.

How may sentinels be regarded?

They may be regarded as the guardians of the repose, quiet and safety of the command.

RESPECT FOR SENTINELS

739. *Is every one required to be respectful to sentinels?*

Yes; respect for the person and office of a sentinel is as strictly enjoined by military law as that required to be paid to an officer. (Davis' Military Law.)

What does the Manual of Interior Guard Duty say on the subject?

"All persons of whatever rank in the service are required to observe respect towards sentinels and members of the guard when such are in the performance of their duty." (Par. 157)

Why is this respect for sentinels so strictly required?

Invested as the private soldier frequently is, while on his post, with a grave responsibility, it is proper and necessary that he should be fully protected in the discharge of his duty. To permit anyone, of whatever rank, to molest or interfere with him while thus employed, without becoming liable to severe penalty, would clearly establish a precedent highly prejudicial to the interests of the service. (Davis' Military Law.)

DUTY OF SENTINELS

740. *With respect to the duties with which a sentinel is charged whom does he represent?*

He represents the commanding officer, whose orders he is required to enforce on or in the vicinity of his post. (Davis' Military Law.)

What authority has a sentinel over military persons?

He has absolute authority over them, and disobedience of a sentinel's orders on the part of military persons constitutes a most serious offense and is prejudicial in the highest degree to the interests of discipline. (Davis' Military Law.)

ORDERS FOR SENTINELS

(The numbers following the paragraphs are the paragraph numbers of the Manual of Interior Guard Duty, Edition, 1914.)

741. *Into what two classes are orders for sentinels divided?*

General Orders and Special Orders. (155)

What are General Orders?

General Orders are those that apply to all sentinels in the Army (155) and they are prescribed by the War Department. (Author).

What are Special Orders?

Special Orders are those that apply to particular posts and duties (155) and are prescribed by the commanding officer. (Author).

What are the General Orders of a sentinel?

Sentinels are required to memorize the following:

My General Orders are:

1. To take charge of this post and all Government property in view.
2. To walk my post in a military manner, keeping always on the alert and observing everything that takes place within sight or hearing.
3. To report all violations of orders I am instructed to enforce.
4. To repeat all calls from posts more distant from the guardhouse than my own.
5. To quit my post only when properly relieved.
6. To receive, obey, and pass on to the sentinel who relieves me all orders from the commanding officer, officer of the day, and officers and noncommissioned officers of the guard only.
7. To talk to no one except in line of duty.
8. In case of fire or disorder to give the alarm.
9. To allow no one to commit a nuisance on or near my post.
10. In any case not covered by instructions to call the corporal of the guard.
11. To salute all officers, and all colors and standards not cased.
12. To be especially watchful at night, and, during the time for challenging, to challenge all persons on or near my post, and to allow no one to pass without proper authority. (156)

REGULATIONS RELATING TO THE GENERAL ORDERS FOR SENTINELS

742. (No. 1. To take charge of this post and all Government property in view.)

What should a sentinel do in case he should notice anything unusual or suspicious?

He should at once call the corporal of the guard and report the facts to him. (158)

742 (contd.)

What should a sentinel do with—

(a) Suspicious persons prowling about the post or camp at any time;
(b) Parties to a disorder occurring on or near his post;
(c) Unauthorized persons who attempt to enter camp at night?

He should arrest them and turn them over to the corporal of the guard. (159)

What always forms a part of the special orders of a sentinel?

The number, limits and extent of his post. (160)

What do you mean by the limits of a sentinel's post?

Every place to which he is required to go in the performance of his duties. (160)

What do you mean by the extent of a sentinel's post?

The points between which his post extends,—it's the length of his post. (Author)

What do you mean by taking charge of a post and all Government property in view?

A sentinel on post represents the Government, and he is placed there to look after its interest. A sentinel's post is not merely the line on which he actually walks, but it extends to the next posts on either end, whether or not he is required to walk the entire length of the post. Not only is the sentinel required to look after all property on his post, but he is also required to see that all Government property in the immediate neighborhood suffers no injury of any kind. (Author)

(No. 2. To walk my post in a military manner, keeping always on the alert and observing everything that takes place within sight or hearing.)

Upon reaching the end of his post is a sentinel required to halt and change the position of his rifle, or to execute to the rear, march, precisely as prescribed in the drill regulations?

No; he faces about while walking, in the manner most convenient to him. (161)

Must a sentinel always go to the end of his post before turning?

No; he may turn at any part of his post as may be best suited to the proper performance of his duty. (161)

How may a sentinel carry his rifle?

On either shoulder and in wet or severe weather, when not in a sentry box, he may carry it at a secure. (161)

How do sentinels stand in sentry boxes?

At ease. (162)

When are sentry boxes used?

Only in wet weather, or at other times when specially authorized by the commanding officer. (162)

May sentinels ever stand at ease on their posts?

Yes; in very hot weather, provided they can in this position effectively discharge their duties. However, they will never take advantage of this privilege without express authority of the commander of the guard or the officer of the day. (163)

May a mounted sentinel dismount?

He may dismount occasionally and lead his horse, but he will not relax his vigilance. (164)

What do you mean by, To walk my post in a military manner?

To walk my post in a military manner, means to maintain the bearing and appearance of a soldier, keeping the uniform orderly and clean and avoiding careless or slouchy movements. The reason for this is that a sentinel on post usually occupies a position where he is generally seen by the officers and soldiers of his own organization as well as by those of others and by civilians, and under such conditions, a sentinel's walking his post in a careless and slouchy manner would be an unmilitary performance that would naturally create a most unfavorable impression, even, in some cases, to the extent of bringing scorn and discredit upon the entire command. (Author)

What is meant by, On the Alert?

On the alert, means on the lookout or watch against attack or danger; ready to act, and **Keeping constantly on the alert, observing everything that takes place within sight or hearing,** means that the sentinel shall keep his mind all the time upon his duty and not fall into any day-dreams. In this manner he may often observe things that would otherwise pass unnoticed, and though they may seem to him to have no bearing upon his duty, yet from the answers of an alert sentinel an officer may sometimes obtain valuable information. (Author)

(No. 3. To report all violations of orders I am instructed to enforce.)

As a rule when does a sentinel report a violation of orders?

When he is inspected or relieved, but if the case be urgent he will call the corporal of the guard, and also, if necessary, he will arrest the offender. (165)

(No. 4. To repeat all calls from posts more distant from the guard-house than my own.)

How does a sentinel call the corporal of the guard for any other purpose than relief?

"Corporal of the guard, No. (—)," adding the number of his post. (166)

Should a sentinel, after calling the corporal of the guard, ever call, Never mind the corporal?

In no case will a sentinel ever call, **Never mind the corporal,** nor will the corporal pay any attention to such a call, if given. (166)

(The reason for this is that a person may overpower a sentinel after he has called for the corporal of the guard, and then compel him to call, **Never mind the corporal,** or the person himself may call, **Never mind the corporal.**—Author)

(No. 5. To quit my post only when properly relieved.)

If, by reason of sickness or other cause, it becomes necessary for a sentinel to call for relief, how does he do so?

"Corporal of the guard, No. (—), Relief," giving the number of his post. (167)

If a sentinel is to be relieved, what does he do on the approach of the relief?

When the relief is thirty paces from him, he halts and faces toward the relief with arms at right shoulder. He comes to port arms with the new sentinel, and in a low tone repeats to him all the special orders relating to the post and any other information which will assist him to better perform his duties. (168) At the command **Post,** both sentinels resume the right shoulder, face toward the new corporal and step back so as to allow the relief to pass in front of them. The new corporal then commands, 1. **Forward,** 2. **March;** the old sentinel takes his place in rear of the relief as it passes him, his piece in the same position as those of the relief. The new sentinel stands fast at right shoulder until the relief has passed six paces beyond him, when he begins to walk his post. (111)

What do you mean by post?

The word **post** includes the whole extent of ground specially pointed out to a sentinel as the limits of his walk as a sentinel. (Dudley's Military Law.)

What is meant by Quitting post?

It means *leaving* and being off post any material distance. (Dudley's Military Law.)

What is the meaning of Properly relieved?

Properly relieved means to be relieved by someone who has the authority to relieve a sentinel, that is to say, the commanding officer, the officer of the day, an officer, or noncommissioned officer of the guard only. (Author)

What is the punishment for a sentinel leaving his post before being properly relieved?

In time of peace he may suffer such punishment, except death, as a court-martial may direct. In time of war he may suffer death. (39th Article of War.)

(No. 6. To receive, obey, and pass on to the sentinel who relieves me, all orders from the commanding officer, officer of the day and officers, and noncommissioned officers of the guard only.)

During his tour of duty to whose orders is a member of the guard subject?

The orders of the commanding officer, officer of the day, and officers and noncommissioned officers of the guard only. (169)

May any officer investigate violations or regulations by members of the guard?

Yes; any officer may do so. (169)

Should an officer other than one authorized to give orders to sentinels, give directions to a sentinel, what should the sentinel do?

Immediately call the corporal of the guard and report the facts to him. (Author)

Should a sentinel ever quit his piece?

Only on an explicit order from the commanding officer, officer of the day, an officer or noncommissioned officer of the guard. Under no circumstances should he ever yield it to anyone else. (170)

(Note: Unless necessity therefore exists, no person should require a sentinel to quit his piece, even to inspect it.—170)

What is a Countersign?

It is a word given from the headquarters of a command to aid guards and sentinels in identifying persons who may be authorized to pass at night. (210)

To whom may a sentinel divulge the countersign?

He will divulge the countersign to no one except the sentinel who relieves him, or to a person from whom he properly receives orders, on such person's verbal order given personally. (171)

What is the punishment for divulging the countersign to a person not authorized to receive it?

In time of war it may be death or such other punishment as a court-martial may direct. (44th Article of War.)

Are privates of the guard allowed to use the countersign when not posted as sentinels?

No; they are strictly forbidden to do so. They are authorized to use the countersign only in the performance of their duties while posted as sentinels. (171)

(No. 7. To talk to no one except in the line of duty.)

When calling for any purpose, challenging or holding communication with any person, what position should a dismounted sentinel armed with a rifle or saber, take?

He should take the position of "port" arms or saber. (172)

At night what position should a dismounted sentinel, armed with a pistol, take in challenging or holding communication?

The position of raise pistol. (172)

Does a mounted sentinel ordinarily draw his weapon in the day time when challenging or holding conversation?

No; he does not, but if already drawn he holds the weapon at advance rifle, raise pistol, or port saber, depending on which weapon he is armed with. (172)

Does a mounted sentinel draw his weapon at night when challenging or holding conversation?

Yes; he draws his weapon and holds it as prescribed above, depending on whether he is armed with a rifle, pistol or saber. (172)

(No. 8. In case of fire or disorder to give the alarm.)

What should a sentinel, except the one at the post of the guard, do in case of fire?

Call, "Fire, No. (—)," adding the number of his post. If possible he will extinguish the fire himself. If the danger be great he will discharge his piece *before* calling. (173)

(Note. The piece is fired *before*, and not *after*, calling so as to fix the attention of anyone within earshot. The firing of a shot naturally fixes the attention of anyone hearing it, and such a person would then be sure to hear any call that might follow.—Author)

What should be done in the case of a fire in a stable?

First, the proper alarm given; then, the door toward the wind closed, immediately after which the sentinel should begin to take the horses out, commencing with those nearest the fire. If the fire is not burning fast, the horses are turned into one of the corrals, not near the fire, or they are tied to the picket line; for, if merely turned loose they are liable to run back into the fire. If a horse refuses to lead out or away from the fire his head should be covered with a sack, coat or something else and he should then be led out. If the fire is making such headway that there is not time to take the horses out, the sentinel should then merely loosen them all and trust to their getting out. (Author)

What should a sentinel, except the one at the post of the guard, do in case of disorder?

Call, "The Guard, No. (—)," adding the number of his post. If the danger be great, he will discharge his piece *before* calling. (173)

What do you mean by, Disorder?

A disorder is a disturbance, or breach of public order of any kind, such as loud and boisterous conduct on the part of drunken men; or two or more men fighting or otherwise misbehaving themselves. (Author)

(No. 9. To allow no one to commit a nuisance on or near my post.)

What is meant by, Nuisance?

Nuisance means anything that is disagreeable or offensive, such as urinating, etc. (Author)

LESSON E

(No. 10. To salute all officers and all colors and standards not cased.)

Do sentinels salute all officers?

Yes; when not engaged in the performance of a specific duty, the proper execution of which would prevent it, a sentinel will salute all officers who pass him. (174)

Does this rule apply at all hours of the day or night?

Yes. (Except in case of mounted sentinels armed with a rifle or pistol, or dismounted sentinels armed with a pistol, after challenging. This is explained later.—174)

What form of salute does a dismounted sentinel use?

If armed with a rifle or saber, he salutes with the present; if otherwise armed, he salutes with his right hand. (175)

What form of salute does a mounted sentinel use?

A mounted sentinel, if armed with a saber and the saber be drawn, salutes by presenting saber; otherwise he salutes in all cases with the right hand. (175)

Explain in detail how a dismounted sentinel salutes.

With piece at right shoulder or saber at carry, the sentinel halts and faces toward the person to be saluted when the latter arrives within thirty paces. If the person approaches along the sentinel's post, the salute is rendered when he arrives at a point six paces from the sentinel. (176)

If the person crosses the sentinel's post, he is saluted just before reaching the post. (Author)

Does a sentinel salute an officer who crosses his post, but does not pass within thirty paces of the sentinel?

Yes, he does. (Decision A. G. O., July 21, 1906.)

If he is approaching the sentinel on a line that does not cross his post, he is saluted just before crossing the sentinel's front. (Author)

What is saluting distance assumed to be, and why?

Thirty paces, because this is supposed to be the distance within which insignia can be readily recognized. (176)

Suppose an officer approaches within 30 paces, but does not come within six paces of the sentinel, when is he saluted?

When he reaches the nearest point. (177)

How long does a sentinel remain at the present?

Until his salute is returned or until the person saluted has passed. (Author)

When does the sentinel resume walking his post?

When the person saluted has passed about six paces beyond him. (Author)

What are Colors and Standards and when are they Cased?

Colors are the national flag and the regimental flag carried by the Infantry and other foot troops.

Standards are the national flag and the regimental flag carried by the Cavalry and Field Artillery; they are smaller than those carried by the Infantry.

Colors and *Standards* are *Cased* when they are rolled and covered with a water-proof case. (Author)

What does a sentinel in a sentry box, armed with the rifle, do on the approach of a person or party entitled to salute?

He stands at attention at an order and salutes by presenting arms in accordance with foregoing rules. (178)

What does a sentinel do if armed with a saber?

He stands at the carry and salutes as before stated. (178)

How does a mounted sentinel on a regular post salute?

He halts, faces and salutes in accordance with the foregoing rules. (179)

How does a mounted sentinel doing patrol duty salute?

He salutes as before stated, but does not halt unless spoken to. (179)

Who are entitled to salutes from sentinels?

All persons entitled to compliments from the guard (Par. 224, Manual of Interior Guard Duty); officers of the Army, Navy, and Marine Corps; military and naval officers of foreign powers; officers of volunteers, and militia officers when in uniform. (180)

Are sentinels required to memorize the list of persons given in Par. 224, Manual of Interior Guard Duty, who are entitled to compliments from the guard?

No; they are not. Except in the case of general officers of the Army, they will be notified of the presence in camp or garrison of persons entitled to compliments from the guard. (226)

Does a sentinel salute the remains of a deceased officer or soldier?

Yes; provided they pass within saluting distance. (180 and 228)

If an officer has been holding communication with a sentinel, what should the sentinel do when the officer leaves?

He should salute. (181)

When should he salute?

The very moment the officer makes the first move to go. (Author)

During the hours when challenging is prescribed, when is an officer saluted?

As soon as he has been duly recognized and advanced. (181)

Does a mounted sentinel armed with a rifle or pistol, or a dismounted sentinel armed with the pistol, salute after challenging?

No; he does not. He stands at the advance rifle or raise pistol until the officer passes. (181)

What does a sentinel do in case of the approach of an armed party of the guard?

He halts when it is about thirty paces from him, facing towards the party, with his piece at the right shoulder. If not himself relieved he will, as the party passes, place himself so that it will pass in front of him. (182)

When does he resume walking his post?

When the party has passed six paces beyond him. (182)

742 (contd.)

Is an officer entitled to the salute if not in uniform?

Yes; an officer is entitled to salute whether in uniform or not. (183)

Should a sentinel in communication with an officer interrupt the conversation to salute?

No; he should not. In case the officer approaching is senior to the officer speaking to the sentinel, the officer talking salutes the superior, whereupon the sentinel also salutes. (184)

When the flag is lowered at retreat what should a sentinel on post and in view of the flag, do?

He should face the flag, and, at the first note of "The Star Spangled Banner," or **to the color**, come to the present and retain this position until the sounding of the last note, when he resumes walking his post. (185)

When The Star Spangled Banner is played at a military post on an occasion other than retreat, or at any other place, what should sentinels on post in the vicinity do?

If their duties do not prevent, they will face the music and come to the present at the first note of "The Star Spangled Banner," retaining this position until the sounding of the last note, when they resume walking post. (A. R. 378 and Cir. 87/'09.)

When the flag is hoisted at guard mounting on board a transport, what do sentinels on post in the vicinity of the ceremony do?

They salute the same as at retreat. (Cir. 87/'09.)

(No. 11. To be especially watchful at night and during the time for challenging, challenge all persons on or near my post, and to allow no one to pass without proper authority.)

During challenging hours, what should a sentinel do if he should see any person or party on or near his post?

He should advance rapidly along his post toward such person or party and when within about thirty yards challenge sharply, "**HALT. Who is there?**" The sentinel will take care to place himself in the best position to receive or, if necessary, to arrest the person or party. (186)

How is a mounted party challenged?

"**HALT. DISMOUNT. Who is there?**" (187)

If a sentinel should challenge a party of two or more persons, how many should he permit to approach him to give the countersign, or (if no countersign be used) to be recognized?

He should permit only one to approach him. (188)

What does the sentinel then do?

After having advanced and recognized one of the party, the whole party is then advanced, that is, allowed to pass. (188)

How is a party of two or more in a carriage or automobile challenged and advanced?

"**HALT. Who is there?**" and after receiving an answer, adding, "**Dismount one and advance to be recognized.**" If the headlights (not sidelights) are on, the sentinel after calling "Halt," will immediately add, "**Turn off your headlights.**" (Author)

How is a person on a bicycle or motorcycle challenged and advanced?

"**HALT. DISMOUNT. Turn your lights the other way. Who is there?**" (Author)

(Note. The sentinel gives the directions indicated in the case of lights, so that they may not be suddenly flashed in his face for the purpose of blinding him.)

What must a sentinel always do before permitting anyone to pass his post?

He must satisfy himself beyond doubt that the person is what he represents himself to be and has a right to pass. (189)

If not satisfied about the identity of the person or his right to pass, what should the sentinel do?

Caution the person to stand and then call the corporal of the guard. (189)

If the sentinel has no authority to pass persons with the countersign, but some present themselves with one; or if a party, not known to the sentinel, who is supposed to have the countersign hasn't got it, or gives an incorrect one, what should the sentinel do?

He cautions them to stand and then calls the corporal of the guard. (189)

How near should a sentinel permit a person to approach before recognizing such person or receiving the countersign?

He should not permit anyone to approach so close as to prevent the proper use of his weapon before recognizing the person or receiving the countersign. (190)

If two or more persons approach in one party and the sentinel upon challenging them receives an answer indicating that they have the countersign, how does he advance them?

Having received an answer to his challenge, he will say, "**Advance one with the countersign,**" and, upon receiving the countersign will then say, "**Advance (so and so),**" repeating the answer to his challenge. (191)

Illustrate with relief.

Sentinel: "**HALT. Who is there?**"

Answer by one of party: Relief.

Sentinel: "**Advance one with the countersign.**"

Sentinel (after recognizing him): "**Advance relief.**" (191)

Illustrate how a single person having the countersign is advanced.

Sentinel: "**HALT. Who is there?**"

Answer: Friend with the countersign (or officer of the day, or etc.).

Sentinel: **Advance friend with the countersign**" (or officer of the day, or etc.), and then, "**Advance, friend**" (or officer of the day, or etc.). (192)

If a party is already advanced and is in communication with the sentinel, what should the sentinel do if one or more other parties should approach?

He will, without regard to the officer to whom he is talking, at once challenge the approaching party or parties in succession. If any of the parties challenged be senior to the one already advanced, the sentinel will advance the senior. Otherwise, the sentinel will not advance any of them until the senior, who has already been advanced, allows him to do so, or leaves his post. He will then advance the senior only of the remaining parties, and so on. (194)

Should a sentinel who has advanced a junior and a senior, speak to the junior while the senior is still on his post?

He should first get the permission of the senior before addressing the junior. (Author)

What order of rank should be observed in advancing different persons?

1. Commanding officer.
2. Officer of the Day.
3. Officer of the Guard.
4. Officers.
5. Patrols.
6. Reliefs.
7. Noncommissioned officers of the guard, in order of rank.
8. Friends. (195)

Should a sentinel ever allow himself to be surprised?

Under no circumstances should a sentinel ever allow himself to be surprised. (196) Such an occurrence would show great lack of alertness, for which the sentinel would be punished. (Author)

Should a sentinel ever allow two or more parties to advance upon him at the same time?

No; in no case should he allow it. (196)

If no countersign is used, in what way are the rules for advancing parties changed?

Instead of saying, "**Advance (so and so) with the countersign,**" the sentinel says, "**Advance (so and so) to be recognized.**" Upon recognition he says, "**Advance (so and so).**" (197)

Should confusing or misleading answers to challenges ever be used?

No; the use of such answers is expressly forbidden. (198)

SPECIAL ORDERS FOR SENTINELS AT THE POST OF THE GUARD

743. *What orders are sentinels at the post of the guard required to memorize?*

Between reveille and retreat to turn out the guard for all persons designated by the commanding officer, for all colors or standards not cased, and in time of war for all armed parties approaching my post, except troops at drill and reliefs and detachments of the guard.

At night, after challenging any person or party, to advance no one but call the corporal of the guard, repeating the answer to the challenge. (199)

What is meant by Between reveille and retreat?

It is the interval between the firing of the morning and evening gun; or if no gun is fired, it is the interval between the sounding of the first note of the reveille, or the first march if marches be played, and the last note of retreat. (Par. 274, Manual of Guard Duty, 1908.)

After receiving an answer to his challenge, what does No. 1[1] do?

He calls, "**Corporal of the guard, (so and so),**" repeating the answer to the challenge. (200)

How long does he remain in the position assumed in challenging?

Until the corporal has recognized or advanced the person or party challenged.

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[1] The number of the post at the post of the guard is always One, and the sentinel thereon is referred to as "No. 1."

CHALLENGE TABLE

Challenge	Answer	Sentinel's Order	Remarks
HALT! Who is there?	1. Friend, officer, member of the garrison, member of the guard, or any other answer indicating only one person, who is not supposed to have the countersign.	1. ADVANCE (So and so), *(re- the answer to the challenge).* 2. ADVANCE ONE TO BE RECOGNIZED. *(And after recognition)* ADVANCE (So and so) *(repeating the answer to the challenge.)*	If the person is not recognized, call the Corporal of the Guard.
	2. Friends, officers, members of the garrison, members of the guard, or any other answer indicating more than one person, who are not supposed to have the countersign.		Note: The uniform of an officer would ordinarily identify him as an officer, friend, or member of the garrison.
(If party challenged be mounted,)	3. Commanding officer, Officer of the Day, Officer of the Guard, Commander of the Guard, Sergeant of the Guard, Corporal of the Guard, friend with the countersign, or any other answer indicating only one person who is supposed to have the countersign.	3. ADVANCE (So and so) *(repeating the answer to the challenge)* WITH THE COUNTERSIGN. *(And after the countersign has been given)* ADVANCE (So and so) *(repeat-* VANCE (So and so) *(repeating ing the answer to the challenge).* COUNTERSIGN. *peating the answer to the challenge)* TO BE RECOGNIZED *(and after recognition)* AD-	If the wrong countersign is given, or if a person who is supposed to have the countersign can not give it and if he is not recognized by the sentinel, call the Corporal of the Guard.
HALT! DISMOUNT; Who is there?	4. Relief, patrol, or any other answer, indicating more than one person who are supposed to have the countersign.	4. ADVANCE ONE WITH THE *(And after the countersign has been given)* ADVANCE (So and so) *(repeating the answer to the challenge).*	If the person is entitled to the salute, present arms immediately after advancing him. If the person has a drawn saber, revolver, or other weapon, order him to return it before finally advancing him. In case of attack or hostile demonstration, discharge your piece and call "The Guard, No. —."

743 (contd.)

What does No. 1 then do?

He resumes walking his post; or, if the person or party advanced be entitled to a salute, he salutes, and as soon as his salute has been acknowledged, he resumes walking his post. (201)

Illustrate by a few examples the manner of turning out the guard.

Turn out the guard—

Commanding officer,
Governor of a territory,
National colors,
Armed party,
Secretary of war, (203)
General officer. (Author)

What does No. 1 call at the approach of the new guard at guard mounting?

"**Turn out the guard, armed party.**" (203)

If the person named by the sentinel does not desire the guard turned out, what does such person do?

He salutes, whereupon No. 1 will call, "**Never mind the guard.**" (204)

After having called, Turn out the guard, in the case of the approach of an armed party, should No. 1 ever call, Never mind the guard?

No; never. (205)

Suppose the guard is already turned out and formed, what should No. 1 do upon the approach of a person entitled to have the guard turned out?

He will nevertheless call, "**Turn out the guard,**" except that the guard will not be turned out for any person while his senior is at or coming to the post of the guard. (206)

If two or more persons entitled to have the guard turned out should approach at the same time, what should No. 1 do?

He would turn out the guard for the senior only. (206)

If the senior did not wish to have the guard turned out, would No. 1 then turn it out for the next in rank?

No; he would not, for the guard is never turned out for a junior while a senior is at or coming to the post of the guard. (206)

What should the sentinels at the post of the guard do in the case of the approach of any armed body and in the case of the presence in the vicinity of any suspicious or disorderly persons?

They will at once warn the commander of the guard. (207)

What does No. 1 do in case of fire or disorder in sight or hearing?

He will call the corporal of the guard and report the facts to him. (208)

Is the guard turned out when the remains of a deceased officer or soldier are carried past?

Yes; the guard turns out and presents arms. (228)

How does No. 1 turn out the guard for the remains of a deceased officer or soldier?

"**Turn out the guard, remains of deceased officer (or soldier).**" (Author)

Is the guard turned out for the national or regimental color if the party carrying it is at drill?

Yes; but if the drill is conducted in the vicinity of the guardhouse, the guard will be turned out when the colors first pass, and not thereafter. (227)

Who has charge of the prisoners at the post of the guard?

No. 1, except when they have been turned over to the prison guard or overseers. (299)

What are No. 1's orders regarding prisoners?

(a) He will allow none to escape.

(b) He will allow none to cross his post leaving the guardhouse except when passed by an officer or non-commissioned officer of the guard.

(c) He will allow no one to communicate with prisoners without permission from proper authority.

(d) He will promptly report to the corporal of the guard any suspicious noise made by the prisoners.

(e) He will be prepared to tell whenever asked how many prisoners are in the guardhouse and how many are out at work or elsewhere. (299)

Whenever prisoners are brought to his post returning from work or elsewhere, what should No. 1 do?

Halt them and call the corporal of the guard, notifying him of the number of prisoners returning. Thus: "**Corporal of the guard, (so many) prisoners.**" (299)

LESSON F

ORDERS FOR SENTINELS IN CHARGE OF PRISONERS

744. *If a prisoner attempts to escape, what should the sentinel do?*

He should call, "**Halt.**" (305)

What should be done, if the prisoner fails to halt?

The sentinel will repeat, "**Halt.**" (305)

Suppose the prisoner should still fail to halt, what should the sentinel do?

If there is no other possible means of preventing his escape, the sentry will fire upon him. (305)

Should the sentinel fire to hit?

Yes; if the prisoner does not pay any attention to the command to halt, the sentinel must fire to maim, or even kill, and the failure to fire with this intent is a serious military offense. (Page 64, Manual of Interior Guard Duty.)

What is the punishment for a sentinel who allows a prisoner to escape?

In time of war, any punishment, except death, that a court-martial may direct. In time of peace the greatest punishment is confinement at hard labor for six months and forfeiture of two-thirds pay for the same period. If a sentinel willfully allows a prisoner to escape, he may be dishonorably discharged, forfeiting all pay and allowances, and be confined at hard labor for one year. (Manual for Courts-Martial.)

On approaching the post of the sentinel at the guardhouse, what should a sentinel in charge of prisoners do?

He will halt his prisoners and call, "**No. 1, (so many) prisoners,**" and he will not allow them to cross the post of the sentinel until so directed by the corporal of the guard. (306)

Are sentinels who are placed over prisoners at work responsible that the prisoners shall perform the work properly and satisfactorily?

Yes; they are held strictly responsible? (307)

How should a sentinel always stand with respect to his prisoners?

He must always keep them in front of him, and never allow them to walk at his side or in his rear. (Author)

Should he at any time lose sight of them?

No; never. (Author)

What does a sentinel in charge of prisoners do, when an officer approaches, or when the sentinel approaches an officer?

When within six paces of the officer, he will salute with the rifle, taking care to keep his prisoners constantly in front of him. (Author)

MUSICIANS OF THE GUARD

745. *What are the duties of the musicians about sounding calls?*

They sound all calls prescribed by the commanding officer, at such times and places as may be directed. (138 and Author)

Should the guard be turned out for national or regimental colors or standards, not cased, what do the musicians do?

When the guard presents arms, the field music sounds, **To the colors** or **To the standard.** (139)

When the guard is turned out as a compliment to a person entitled to the march, flourishes or ruffles, what does the field music do?

When the guard presents arms, the field music sounds off as follows:
For the President—the President's March.
For a General—the General's March.
For a Lieutenant General—three flourishes.
For a Major General—two flourishes.
For a Brigadier General—one flourish.

(Note. For others entitled to the march, flourishes and ruffles, see Par. 376, Army regulations.)

Where do the musicians remain during their tour of duty?

Unless otherwise directed by the commanding officer, they remain at the guardhouse and fall in with the guard when it is formed. (Author)

They form on a line with the front rank of the guard, their left three paces from the right guide. (360)

Where do the musicians of the guard sleep?

They sleep at the guardhouse, unless otherwise directed by commanding officer. (Author)

ORDERLIES

746. *When directed by the commander of the guard to fall out and report, what does the orderly do?*

He will give his name, company and regiment to the sergeant of the guard, and, leaving his rifle in the arm-rack in his company quarters, will proceed at once to the officer to whom assigned to report to him. (142)

How does he report?

He will salute the officer and say, "**Sir, Private————, Company ————, reports as orderly.**" (142)

[Note. If more than one regiment (or if parts of more than one regiment) are serving at the post, the orderly will report, for instance, "**Sir, Private Smith, Troop A, 1st Cavalry, reports as orderly.**"—Author]

If the orderly be a cavalryman, does he report with side arms?

He will report with his belt on, but without side-arms, unless specially otherwise ordered. (143)

When the orderly reports, what does the commanding officer usually say to him?

"**Relieve the old orderly,**" whereupon the new orderly replies, "**Yes, sir,**" and then faces about and leaves the office. (Author)

Should the new orderly always be sure to get all instructions from the old orderly?

Yes; he should. (Author)

To whose orders is the orderly subject?

Only to the orders of the commanding officer and of the officers to whom they are ordered to report. (144)

When ordered to carry a message, what should an orderly be careful to do?

He will be careful to deliver it exactly as it was given him. (145)

If he does not understand a message given him for delivery, or any instructions that he may receive, what should he do?

Ask the officer to repeat them. For example: "**Sir, the orderly does not understand; will the commanding officer (or the captain) please repeat the message or his instructions?**" (Author)

How does an orderly acknowledge the receipt of orders, messages and instructions?

By saluting and saying, "**Yes, sir.**" (Author)

What should an orderly always do after having delivered a message or returned from an errand?

He will always report accordingly to the officer. For example, "**Sir, the commanding officer's message has been delivered to Captain Smith.**" (Author)

When does an orderly's tour of duty end?

When he is relieved by the new orderly. (146)

Is an orderly a member of the guard?

Yes; and his name, company, and regiment are entered on the guard report and lists of the guard. (147)

Where does the commanding officer's orderly sleep?

In his company quarters, or such other place as may be designated by the commanding officer. (Author)

Does the orderly, when called, knock before entering the commanding officer's office?

No; it is a custom of the service for him to enter without knocking. (Author)

Should an orderly always turn over all his orders and instructions to his successor?

Yes; he must be sure to do so. (Author)

What is it customary for an orderly to do at mess call?

If in attendance on an officer, it is customary to report, "**Sir, mess call has sounded,**" whereupon the officer generally says, "**Go to your mess.**" (Author)

If a sentinel is relieved at a certain hour daily, what should he do when the hour arrives?

Report to the officer, "**Sir, it is ——— o'clock.**" (Author)

ORDERS FOR COLOR SENTINELS

(Sentinels posted on the color line)

747. *Where do color sentinels sleep?*

In their company barracks. (Author)

When are they required to report to the commander of the guard?

At reveille and retreat they are required to report in person to the commander of the guard. (150) They will also report at the guardhouse and remain there during such hours as may be designated by the commanding officer. (Author)

Do they fall in, under arms, with the guard at guard mounting?

Yes; they do. (150)

How does a color sentinel call for the corporal of the guard?

"**Corporal of the guard, color line.**" (151)

Are officers and enlisted men required to salute the colors, on the color line, if uncased, when they pass them?

Yes. (152)

When is the salute rendered?

On crossing the color line or on passing the color. (152)

Should a person crossing the color line or passing the color, fail to salute it, what should the sentinel do?

Come to a port arms and call to him, "**Salute the color.**" In case of an officer, call, "**Salute the color, please.**" If the caution be not heeded, the sentinel will call the corporal of the guard and report the facts to him. (153 and Author)

Will the color sentinel allow the colors to be removed?

Only in the presence of an armed escort, and unless otherwise ordered by the commanding officer, he will allow no one to touch the colors except the color bearer. (153)

Will he allow any soldier to take arms from the stacks, or to touch them?

Only by an order of an officer or noncommissioned officer of the guard. (153)

GENERAL RULES CONCERNING GUARD DUTY

748. *May a soldier hire another to do his guard or other duty for him?*

No; under no circumstances. (231)

Is drunkenness on guard considered a serious offense?

Yes; and a soldier found guilty of drunkenness on guard may, in time of peace, be sentenced to confinement at hard labor for six months and forfeiture of two-thirds of his pay for the same period. In time of war he may suffer such punishment, except death, that a court-martial may direct. (38th Article of War and Courts-Martial Manual.)

Why is the offense of drunkenness considered more serious in military law than in civil law?

Because the responsibilities of the soldier are often very great, and drunkenness not only unfits the soldier for duty and tends to ruin discipline, but, in time of war it might endanger the safety of the command. (Dudley's Military Law.)

What is meant by drunkenness,—does it mean that a man must be so "full" that he staggers?

No; not at all. A man is considered drunk if the full exercise of his mental and physical faculties is noticeably impaired by the use of liquor, opium, or any other intoxicating drug or thing. (Dudley's Military Law.)

Is sleeping on post a serious offense?

The safety of the army in time of war, and the security of persons and property under the charge of sentinels in time of peace, depend upon the watchfulness and careful performance of the duty of sentinels. The heaviest penalties, are, therefore, awarded for failure to properly perform the duties of a sentinel, and especially upon him who quits his post or is found asleep thereon. (Dudley's Military Law.)

What is the punishment for sleeping on post?

Death or such other punishment as a court-martial may direct. (39th Article of War.)

When the guard is formed what do members of the guard do?

They fall in promptly, in their proper place, under arms. (234)

When the roll is called, what does each man do?

As his name, or number and relief, are called, he answers, "**Here,**" and comes to order arms. (94 and 234)

What does a member of the guard do when his relief is formed?

At the command, "1. **(Such) relief**, 2. **Fall in**," he falls in at once, in his proper place according to his number, 2, 4, 6, and so on in the front rank, and 1, 3, 5, and so on in the rear rank, or in the order of their respective posts from right to left, according as the relief is in double or single rank. At the command, "**Call off**," commencing on the right the men call off alternately rear and front rank, **one**, **two**, **three**, etc.; if in single rank they call off from right to left. (114)

Whenever the guard or relief is dismissed, what does each man do with his rifle?

If not required for duty, he will at once place his rifle in the arm rack (if they be provided) and will not remove it therefrom unless he requires it in the performance of some duty. (235)

Are members of the guard allowed to leave the immediate vicinity of the guardhouse?

Members of the guard, except orderlies, will not do so without permission from the commander of the guard. (236)

Are members of the guard allowed to remove their accouterments or clothing?

Members of the guard, except orderlies, will not remove their accouterments or clothing without permission from the commander of the guard. (237)

Are members of the guard forbidden to quit their guard,—that is, to go away from the guardhouse or other place of duty?

Yes; they are forbidden to do so, without permission. (40th Article of War.)

What is the punishment for such an offense?

In time of war such punishment, except death, as a court-martial may direct. In time of peace it may be confinement at hard labor for six months and forfeiture of two-thirds pay for the same period. In time of war the punishment would be much more severe. (40th Article of War and Courts-Martial Manual.)

TROOP STABLE GUARD

749. *Do members of the stable guard attend stables with the rest of the troop and groom their own horses?*

Yes; the sentinels are taken off post for the purpose. (316)

May a member of the stable guard leave the immediate vicinity of the stable?

Only by permission of the noncommissioned officer of the guard. (317)

What are the regulations regarding smoking, fires and lights in the stable?

Smoking in the stables or their immediate vicinity is prohibited. No fire or light, except electric light or stable lanterns, will be permitted in the stables. (320)

Are members of the stable guard governed by the regulations for members of the main guard?

Yes; whenever the regulations are applicable, such as courtesies to officers, walking post in a soldierly manner, challenging, etc. (328)

Do the sentinels turn out the guard?

No; not unless ordered to do so by proper authority. (328)

From whom do members of the stable guard receive orders?

From the commanding officer, the troop commander, and the noncommissioned officers of the stable guard only, except when the commanding officer directs the officer of the day to inspect the stable guard. (329)

Should the sentinel permit any horse or equipment to be taken from the stable?

No; except in the presence of tho noncommissioned officer of the guard. (311)

What should a sentinel do in case a horse gets loose?

Catch him and tie him up. If he is unable to catch the horse, he will at once notify the noncommissioned officer. (332)

What should a sentinel do in case a horse be cast, or in any way entangled?

He will relieve him if possible. If unable to relieve him, he will call the noncommissioned officer. (332)

Should sentinels punish or maltreat horses?

No; they are forbidden to do so. (332)

What does a sentinel do in case a horse is taken sick?

He will notify the noncommissioned officer, who in turn will call the farrier, and see that the horse is properly attended to. (333)

What should a sentinel do in case of fire?

He will give the alarm by stepping outside of the stable and firing his pistol or piece repeatedly, and calling out at the same time, "**Fire, stables, Troop (——).**" (334)

What should he then do?

As soon as the guard is alarmed, he will take the necessary precautions in opening or closing the doors so as to prevent the spreading of the fire and make it possible to remove the horses; he will then drop the chains and bars, and, with the other members of the guard, proceed to lead out the horses and secure them at the picket line or such other place as may have been previously designated. (334)

For whom do sentinels over horses or in charge of prisoners, receive orders, so far as the care of the horses and the labor of the prisoners are concerned?

From the stable sergeant. (335)

In the field artillery and the machine-gun organizations what have the sentinels charge of?

The guns, caissons, etc., with their ammunition and stores, as well as the horses, harness and forage. (336)

FLAG SIGNALING

LESSON G

HOW TO USE THE WIGWAG FLAG

750. This flag is the proper one to use for distant and difficult signaling, and all practice with it should be exclusively to that end.

The greatest swinging arc must be obtained; the motions must be continuous and easily and gracefully made; the "fronts" must be plainly distinguishable and not be confused with the pause at the vertical position; when the flag is not actually in use it must be totally out of sight.

When the flag is in use it must be in one of the following positions:—Resting on the ground at the completion of a front; at the strict vertical position; in the act of making a front; in the act of making a character.

When the flag is at the "vertical position" it must be held well up and rigidly stationary.

All swinging motions must be so made that the flag will not wrap around its staff.

The speed in making characters will depend upon the distance the receivers are away. If sending for distance, a front should never follow a character without a very perceptible pause after such character.

The staff must be grasped with both hands, and the present practice of "thumb and finger" signaling must be discouraged if good results are to be expected.

How to Hold the Staff

751. Squarely face the receiving station; spread the legs well apart, separating the feet by about 24 inches, weight of body resting equally on both feet, knees flexible.

Firmly grasp, with the left hand, the butt of the staff at its very end, hand around the staff, not under the butt. Firmly grasp the staff with the right hand about 10 to 18 inches above the left hand, depending upon the height of the staff.

Raise the staff to a position nearly vertical, the tip extending to the front about 18 inches in advance of the butt.

This position is known as THE VERTICAL POSITION.

How to Make a Dot

752. Keeping both feet firmly in position, turn the body to the right front, slightly bending the right knee and straightening the left knee. At the same time, swing the flag well out to the right front, lowering it, and directing its tip at a point on the ground about 24 inches in front of, and as far to the right of, the operator as the tip of the staff would have rested had it been lowered to the ground, the operator extending both arms to their full extent. Just before the tip reaches the ground, swing it to the rear, causing the lower edge of the flag to just graze the ground. Carry the flag a distance to the rear about equal to the distance it was carried to the front. Return to the original position.

The motion just described is made without pauses or jerks, in a graceful manner, and with just enough speed to keep the flag from wrapping around its staff.

This motion constitutes ONE DOT.

How to Make a Dash

753. The dash is made as described for the dot, but to the left instead of to the right, slightly bending the left knee and straightening the right knee.

This motion constitutes ONE DASH (but see how to make a "Dash-front").

How to Make a Dot-Dash

754. As described for a dot, then for a dash, with no pause at the vertical position,—the result being a figure-of-eight with the cross in front of the center of the signalist.

This motion constitutes ONE DOT-DASH.

How to Make Several Dots in Succession

755. As described for one dot, except that, in returning to the vertical position, carry the tip of the flag slightly forward, and with a counter-clockwise horizontally circular motion of both hands, swing the tip back toward the vertical position, and cause the flag to follow without wrapping around its staff, being careful to see that the staff does not pass the center of the body at any time. Without pause, make each succeeding dot. The result is a figure-of-eight with the cross about opposite the right shoulder.

How to Make Several Dashes in Succession

756. As described for making several dots in succession, except that, in this case, both hands describe horizontal clockwise circles. The result is a figure-of-eight with the cross about opposite the left shoulder.

How to Make a Front

757. Lower and direct the tip of the staff at a point on the ground directly in front of the right foot and at a distance from that foot as determined by the position the tip would have rested had it been lowered to the ground. When the tip is about to touch the ground, carry it directly to the left until about opposite the left foot, and return it to the vertical position, causing the lower edge of the flag to just graze the ground.

The entire motion is continuous and made at a speed merely sufficient to keep the flag from wrapping around its staff.

This motion constitutes ONE FRONT.

In long distance difficult signaling, momentarily rest the tip of the staff on the ground at the "front" position before raising it to vertical position, then return flag to vertical position with one quick motion; pause at this position momentarily before making a dot or a dash.

The position, when resting on the ground, is known as DOWN.

The motion just described is known as a LONG DISTANCE FRONT.

How to Make a Dot-Front

758. Proceed as for making two continuous dots, except that, instead of lowering the flag to the right for the second dot, lower the tip to the front opposite the right foot, carry it to the left until opposite the left foot, and return to the vertical position.

This motion constitutes ONE DOT-FRONT.

How to Make a Dash-Front

759. Proceed as for making two continuous dashes, except that, instead of lowering the flag to the left for the second dash, lower the tip to the front opposite the left foot, carry it to the right until opposite the right foot, and return to the vertical position.

This motion constitutes ONE DASH-FRONT.

How to Make Characters, Words, and Numerals

760. It must be remembered that the pause at the vertical position is **the only means** of separating the letters of a word and the figures of a numeral, consequently not only must each letter be made without the least indication of a hesitation or pause while making that letter, but a very distinct and plainly evident pause must be made at the true vertical position in order to separate the letters of the word. And the separation of one word from another word must be equally plain and evident by a perfectly, and not too quickly, made "front."

In long distant signaling, a "front" should never follow a letter as a component part of that letter, as is permissible in short distant signaling, but a distinct pause at the vertical position should be made, then a "long-distance front" executed.

Beginners must be impressed with the fact that the distant receiving station is attempting to read a very small and quite indistinct moving object, and every false motion, exposed flag when no flag should be exposed, and unevenly made letters make it quite impossible for the receivers to read the sender no matter how expert the former may be.

The greater the distance the greater is the necessity for exceedingly careful sending,—and the rule "Make haste slowly" is golden.

How to Mako the Attention Signal

761. Make a number of dot-dashes without pauses or fronts, and stop at the vertical position.

How to Make a Receiving Operator's Break

762. Raise and hold the flag at the vertical position until the sender perceives the signal and stops sending, lowers his flag, and removes it from view.

If, while working at long distance on a quiet day, and the raising of the flag to vertical cannot be seen, execute the attention signal until the sender perceives the signal.

How to Make a Sending Operator's Break

763. Make a front without finishing the word; make eight dots; make a front; begin the same word over.

How to Send a Common Fraction

764. Send the numerator, and pause at the vertical position.
Send L and pause at the vertical position.
Send the denominator, and make a front.
Example:—To send ¾.
Sent:—3 L 4 front.
Note:—L is for "Line" and to agree with semaphore.

How to Send a Whole Number and Its Fraction

765. Send the whole number and pause at the vertical.
Send N and pause at the vertical.
Send the numerator of the fraction and pause at the vertical.
Send L and pause at the vertical.
Send the denominator, and make a front.
Example:—To send 56¾.
Sent:—56N3L4 front.
Note:—"N" is the middle letter of "aNd."

How to Send a Decimal Fraction

766. Note:—A "decimal point" is "i i i."
Send the whole number and pause at the vertical.
Send i i i and pause at the vertical.
Send the figures after the decimal point, and make a front.
Example:—To send $21.42 cash.
Sent:—Sx (front) 21 i i i 42 (front) cash (front).

How to Send Mixed Letters and Numbers

767. Make a front only between the different groups, or factors.
Example:—To send CB74 CA23D 76Voc.
Sent:—CB74 (front) CA23D (front) 76 Voc (front).

HOW TO USE THE SEMAPHORE FLAG

Remarks Concerning the Flag

768. The semaphore is the quickest method of signaling by means of flags, but errors are so easily made that extreme care is necessary if the semaphore is to be of practical benefit to troops,—with this care it will be of great benefit.

Semaphore should be used for hasty work on the battlefield and on the march when the distances are not excessive. It is the better of the two codes to use in Combat-code Message Work.

The limiting distance for practical work is about 500 yards, though the author has used these flags, with the aid of field glasses, at distances in excess of one mile.

How to Hold the Flags

769. Grip the staffs at their butt ends, thumbs along the staffs, flags to hang so as to expose their maximum areas at all times. Keep the flags in prolongation of the arms by keeping the thumbs in prolongation of the arms.

How to Make Letters

770. Keep the full surface of the flags exposed as much as possible. Make the quadrant positions with accuracy, and equally with both hands.

Never allow the hands and arms to incline to the rear. Keep the staffs in prolongation of the arms. Use full arm extensions.

In making the letters ''d'' and ''j'' turn the elbow to the front, in front of the face.

In making the letters ''k,'' ''p,'' and ''t'' turn the elbow to the front, in front of the face.

In making the letters ''h,'' ''i,'' and ''o'' turn the body on the hips slightly to the right.

In making the letters ''w,'' ''x,'' and ''z'' turn the body on the hips slightly to the left.

Go directly from ''Attention'' to the first letter of the word, without making any intervening ''interval.'' As regards numerals, see ''How to make numerals.''

Never make an ''interval'' between the component parts of any word, numeral, or factor of combined letters and figures. See ''How to make numerals.''

For rapid signaling, when flags are handled by expert semaphore operators:—

The letter ''d'' may be made with either hand.

The letters ''h,'' ''i,'' ''o,'' ''w,'' ''x'' and ''z'' may be made with either hand uppermost.

Example:—Moving one arm only, ''deed,'' ''decade,'' ''Wilholm,'' ''milkman.''

How to Repeat a Letter

771. For all letters except ''a,'' ''b,'' ''c,'' ''d,'' ''e,'' ''f,'' and ''g'' bend **both forearms**, and, for the excepted letters, bend **the forearm** of the extended arm, in toward the body so that the flags (or flag) will strike the chest just under the chin,—**Don't bend them to the position of ''interval''** as so many operators do; then instantly reassume the position for that same letter.

How to Make the Numeral Sign

772. Cross the wrists above the head, arms fully extended diagonally upward, pausing momentarily; go directly from this position to that of the first figure without making any intervening ''interval.''

How to Make the Interval Sign

773. Bring the hands together in front of the body, arms extended diagonally downward, but slightly bent at the elbows, staffs crossing just below the hands.

How to Make the Attention Sign

774. Bring the flags to the position of ''r,'' ana, without any pause at this position, carry the hands straight toward the top of the head without moving the position of the upperarms (extended laterally), flags meeting and crossing above the head; without any perceptible pause, reassume the position of ''r'' and immediately return to the same position over head. Continue as long as may be necessary to attract attention.

In making the ''attention'' signal to break ''numerals'' and restore ''letters,'' make only two swings of the arms at the ''attention,'' then go directly to the position of the first letter without making any intervening "interval."

Having made the "attention" signal, and without pause, go directly from the position of this signal to the first letter of the word which is to follow; or to the numeral sign if numerals are to follow; or outward and downward to the "interval" position if an "interval" is to follow.

How to Make the Error Sign

775. Assume the position of "d," and, without pause, wave the upper flag (usually the one in the right hand) from right to left and back, several times, across and **above** the face; without pausing at the position of "d," and without making any intervening "interval," go directly to the position of the first letter of the word to be repeated; or to the "numeral" sign if the repeated character is to be a figure.

When communicating with the Navy, or with troops other than those of your own organization, use "a a" instead of the above.

Note:—The prescribed error signal "a a" cannot be distinguished **at a distance** and invariably causes confusion when used, "A" being the letter least distinguishable at a distance.

How to Make One Chop-Chop

776. From the position of "interval," or directly from the position of any letter or figure:—

Turn the body on the hips to the right front; alternately swing the forearms upward and downward SEVERAL TIMES, about opposite the waist, the flag in the right hand swinging in rear of that in the left. Return to "interval" WITHOUT PAUSE.

How to Make Two Chop-Chops

777. Make ONE CHOP-CHOP, but, instead of returning to "interval," PAUSE with the right hand up and the left down; now make ONE CHOP-CHOP (returning to "interval").

Note:—By "One Chop-chop" is meant that series of motions described in the paragraph above, not merely one "chop."

How to Make Numerals (that is, figures)

778. After Having Made an Interval

Make the "numeral" sign, and from that position go at once to the position of the first figure of the numeral to be given. If another figure is to follow, go directly to its position. Assume the position of "interval" only after the LAST FIGURE of any numeral, but not even then if a letter is to follow as an integral part of that combination factor.

See examples at the end of this chapter.

After Having Made a Letter

If the numeral is an integral part of a letter factor, then, without making an "interval," go directly from the position of that letter to the position of "numerals;" from this position of "numerals" go directly to the position of the first figure to be sent; complete as explained in the paragraph above.

See examples at the end of this chapter.

Note:—The "numeral" sign does not precede the second numeral (not figure) if one numeral follows another. By "numeral" is meant a group of figures.

How to Send Letters After Having Been Sending Numerals

779. If an "Interval" Followed the Last Numeral Sent

Give the "attention" signal, and go directly from the position of "attention" to the position of the first letter to be sent, without any intervening "interval."

See examples at the end of this chapter.

If a Letter is to Follow as an Integral Part of a Numeral Factor

Having completed the last figure of the numeral portion of the factor, and without going to interval, give the "attention" signal, and from the position of "attention" go directly to the position of the letter to be sent, without making any intervening "interval."

See examples at the end of this chapter.

How to Send Common Fractions

780. Send the entire numerator, then, without making either an "interval" or an "attention" signal, send "L," and, without making either an "interval' or a "numeral" signal, send the denominator.

Example:—To send 2/3.

Sent:—(numerals) 2 L 3 (interval).

How to Send a Whole Number and Its Fraction

781. Send the whole number, then, without making either an "interval" or the "attention" signal, send "N," and, without making either an "interval" or the "numeral" signal, send the fraction as described above.

Example:—To send 46 2/3.

Sent:—(numerals) 46 N 2 L 3 (interval)

How to Send Decimal Fractions

782. Spell out the word "dot" for the decimal point, using the "attention" signal but no "interval."

Example:—To send $76.20 cash ....

Sent:—sx (interval) (numerals) 76 (attention) dot (numerals) 20 (interval) (attention) cash ....

Examples

783. To send "and 721"

Sent:—and (interval) (numerals) 721 (interval)

To send "and 721 426"

Sent:—and (interval) (numerals) 721 (interval) 426 (interval)

To send "and 721 426 lots"

Sent:—and (interval) (numerals) 721 (interval) 426 (interval) (attention) lots (interval)

To send Cb764D

Sent:—Cb (numerals) 764 (attention) D (interval)

To send 76Voc 5

Sent:—(numerals) 76 (attention) Voc (interval) (numerals) 5 (interval)

How to Send Code Words

784. Precede the first code word with XXX, then make a front; now send the code words until the first dictionary word appears, sending another XXX **just before** that dictionary word.

Example:—To send Notify A. G. O. that adube benit killed by Moros

Sent:—Notify (front) A (front) G (front) O (front) that (front) X X X (front) adube (front) benit (front) X X X (front) killed (front) by (front) Moros (front)

How to Send Words That Are Not a Part of a Message

785. It frequently happens, in sending a long flag message, that the senders must communicate with the receivers (or vice versa) and send words they do not intend to have recorded as part of the message.

To send these words, precede them with X X front, then send the words, then send another XX front, then continue with the message.

Example:—To send ....the movement will be made at (enemy cavalry patrol wait a moment) ten P M ....etc.

Sent:—........the (front) movement (front) will (front) be (front) made (front) at (front) X X (front) nmi (front) cav (front) pl (front) min (front)............X X (front) ten (front) P (front) M (front)

LESSON H

STANDARD FIELD MESSAGE

786. Few persons who use it, thoroughly understand the Standard Field Message. This will teach its use and explain some points about the message which are usually not well understood.

Refer to Sample Message, page 40.

On Being Handed the Message

787. Read every word of it. See that it is addressed and signed. Call the writer's attention to any errors found or any omissions. If it contains unnecessary punctuation marks ask the writer if you may omit them. Mark it how sent. In the upper left hand corner enter the date and hour it was handed to you, as 7/25/17/810Am, meaning, July 25, 1917, at 8:10 A. M. Check it and enter the check in the upper right-hand corner, and if a reply is desired put an "X" there, to be signaled. Number it serially as regards the station which is to receive it; for example, if you have sent 20 messages already that day but only 10 of them to the flag station which is to handle this message, its number will be 11. In the "Sent by" square enter the numeral (or numerals) which represent YOUR SIGN, for example, if you are Colonel Brown's orderly your sign is the call of the Regimental Commander, or 7; right after the sign just written enter the two letters which are YOUR PERSONAL SIGNATURE (usually the first and last letters of your last name, or the first and second letters, as "Jo" for "Jones"). Now file the message until you have called and been acknowledged by the station which is to receive it. Then proceed as given in next heading.

On Sending a Message

788. After you have called and been acknowledged in the proper manner (see "How to Call and to Sign" and "How to Acknowledge") take the message from the file. Look at your watch and enter the time so given in the first or left hand "Time" square, at the same time calling "NR, n-r, FIGURES, ELEVEN, 1-1" etc., to your assistant who stands waiting to flag-signal that message. Complete the entire message and give **Three Fronts**, and immediately look at your watch. Enter the time so determined in the second or right-hand "Time" square. Watch for the acknowledgement, read it when it comes, and enter the "2 Rm" (see next subhead) in the "Rec'd by" square and your message is finished.

On Receiving a Message

789. While your assistant is acknowledging the call, take out your message book and pencil and be ready to record as soon as your assistant begins to call the letters. At the instant the "Nr, etc." comes refer to

your watch, and enter the time your watch records in the first or left-hand "Time" square, as "812 Am." If you are receiving the message shown, you may expect to receive "Nr 11 7 Jo Ck 28 Ofm Fm Condg . . ." etc.; hence you will notice the message comes to you in the following sequence (1) Nr. and the number, or 11; (2) The sending station's Call and that operator's Personal Signature, or "7 Jo;" (3) The Check, or "Ck 28 Ofm"; (4) Fm. etc. (For exact details see next subhead.) You continue to receive and to record the entire message until you receive the signature followed by **three fronts,** when you know the message is finished. You then check the message, and if the check is correct, you acknowledge with "R front (or interval), 2 front (or interval) Rm three fronts (or two chop-chops)" which you will notice is equivalent to saying "I received you, I am orderly for Bn Comdr of 2nd Bn, and my Personal Signature is Rm (my name being Rohm)." And you at once enter the "2 Rm" in the "Rec'd by" square, and the time by your watch in the second or right-hand "Time" square. You write nothing in the space "Time Filed" in the upper left-hand corner, but enter "Flag" in the space "How Sent."

Order in Which a Message is Sent

790. Refer to the message on page 40.

Signal "Attention!" for a moment and stop at the vertical, make a front.

Call with—2 front 2 front 2 front front.

Sign with—7 front front front and keep your flag **down.**

Wait for acknowledgment.

On being acknowledged enter time "812Am" as shown, then
Nr * 11 * 7 * ro * ck * 28 * ofm * fm * comdg
* officer * 22nd * inf * at * hill * 102 * 25 * ho * 805 * am *
nr * 12 * [WIGWAG Double DASH; SEMAPHORE 1 Chop-
Chop] to * comdg * officer * 2nd * bn * 22nd * inf * water-
works * tobin [WIGWAG Double Dash; SEMAPHORE 1
Chop-Chop] move * your * battalion * to * edge * of * woods *
reinforcing * the * first * battalion * on * its * left * flank
WIGWAG Double Dash; SEMAPHORE 1 Chop-Chop] sig *
*
brown * colonel *

How a Standard Field Message is "Called" to Be Recorded

791. For accurate and speedy work, one operator should read the message and call it to his assistant who handles the flag and who acts only as a machine, whose function is merely to make each letter and character EXACTLY as it should be made.

SEMAPHORE: This is not so essential for semaphore as it is for wigwag. If there are two operators handling a semaphore message one should call an entire WORD while the other makes that word, but a semaphore operator can handle a message alone.

WIGWAG: It is almost impossible for ONE MAN to handle a wigwag message alone and do so without loss of time, either in sending or in receiving, but especially the latter.

The following method is therefore given WIGWAG operators to enable them to send a message quickly and with precision.

791 (contd.)

The word in CAPITALS is the word that the calling operator SPEAKS to the operator handling the flag, while the small letters represent each letter spoken to such operator immediately after which he is expected to make that character with his flag. The purpose is to notify the flagman what to expect, and then to spell it out for him in detail as he signals each character.

Consider the message shown in Plate 40.

It is presumed that the distant station has acknowledged. To illustrate how a BREAK is called, it is presumed that the RECEIVING SIGNALIST breaks on the word “edge” (that is, fails to read “edge” correctly) and that the No. 1 Operator (he who is CALLING THE MESSAGE) breaks on the word “left” (that is, he starts to call “right” instead of “left” and corrects his error only after No. 2 has sent “rig” of the word “right.” To illustrate how the check may be assured, when wrongly received, it is supposed that the RECEIVING SIGNALIST reads “Waterworks” as TWO words (Water Works) and consequently checks 29 instead of 28.

No. 1 would therefore call the message as follows, No. 2 making the characters. No. 1 waits until No. 2 makes the letter just called before he calls the next one:

> NUMBER nr FRONT ELEVEN FIGURES 11 FRONT FIGURES 7 FRONT JO jo FRONT CHECK ck FRONT FIGURES TWENTY-EIGHT 28 FRONT OFM ofm FRONT FROM fm FRONT COMMANDING comdg FRONT OFFICER officer FRONT TWENTY SECOND FIGURES 22nd FRONT INFANTRY inf FRONT AT at FRONT HILL hill FRONT ONE HUNDRED AND TWO FIGURES 102 FRONT DATE TWENTY-FIVE FIGURES 25 FRONT HOUR ho FRONT EIGHT-O-FIVE FIGURES 805 FRONT AM am FRONT NUMBER nr FRONT TWELVE FIGURES 12 FRONT DOUBLE DASH FRONT ADDRESS TO to FRONT COMMANDING comdg FRONT OFFICER officer FRONT SECOND FIGURES 2nd FRONT BATTALION bn FRONT TWENTY-SECOND FIGURES 22nd FRONT INFANTRY inf FRONT WATERWORKS waterworks FRONT TOBIN tobin FRONT DOUBLE-DASH FRONT.
>
> MESSAGE MOVE move FRONT YOUR your FRONT BATTALION battalion FRONT TO to FRONT EDGE edge FRONT OF o...
>
> (By No. 1..“DOWN”)
> (By No. 2 ....“to FRONT”)
> (By No. 1 ....“UP”)
>
> TO to FRONT EDGE edge FRONT OF of FRONT WOODS woods FRONT REINFORCING reinforcing FRONT THE the FRONT FIRST first FRONT BATTALION battalion FRONT ON on FRONT ITS its FRONT RIGHT rig ....
>
> FRONT BREAK FRONT (sender makes “break”)
>
> LEFT left FRONT FLANK flank FRONT DOUBLE-

TIME FILED	NUMBER	SENT BY	TIME SENT	RECD. BY	TIME RECD	CHECK
7/25/17/8:10 A. M. ~~P. M.~~	Nr 11	7 Jo	8:12 A. M. ~~P. M.~~	2 Rm	8:20 A. M. ~~P. M.~~	Ck 28 Ofm

FROM

Fm Comdg. Officer 22nd Inf.

At Hill 102

DATE	HOUR	WRITER'S NUMBER	HOW SENT
July 25 1917	Ho 8:05 A. M. ~~P. M.~~	Nr 12	Flag

TO Comdg. Officer 2nd Bn 22nd Inf.

Waterworks Tobin

Move your battalion to edge of woods reinforcing the First Battalion on its left flank

Brown, Colonel

DASH FRONT SIGNATURE sig FRONT BROWN brown
FRONT COLONEL colonel FRONT FRONT FRONT

and they watch for acknowledgement, but receivers got a different check from the one sent, hence, No. 2, who is ready to call the distant station, sees their flag rise to vertical, and he calls to his No. 1 what the distant station sends, which is

ck FRONT 29 FRONT

No. 1 rechecks, still makes his check 28, and calls as follows:

CHECK ck TWENTY-EIGHT FIGURES 28 FRONT FIRST
LETTERS OF CHECK co2nb22niwtm............................

but the distant station raises its flag, and No. 2 calls "BREAK" and reads

inf FRONT

So No. 2 starts with "Inf" and begins to call

INFANTRY inf FRONT WATERWORKS waterwo ....

but No. 2 calls "BREAK" and reads

r FRONT 2 FRONT r m FRONT FRONT FRONT.

The reader will note that the distant station had read "waterworks" as TWO words, so was expecting to see another "w" follow the first one, but when the next letter was "t" it was evident that "waterworks" was ONE WORD, hence the error. The receivers then broke and caused the senders to start back behind "waterworks" and send through it to be sure, then broke and acknowledged. Had they not broken, the senders would have gone right on to the end of the message.

WIGWAG AND SEMAPHORE "FRONTS," "INTERVALS," "CHOP-CHOPS"

	WIGWAG	SEMAPHORE	SYMBOL
792. End of word	front	interval	*
To separate call factors	front	interval	*
End of preamble	front front	1 chop-chop	* *
End of address	front front	1 chop-chop	* *
Just before "Sig"	front front	1 chop-chop	* *
To separate the call from the Sign	front front	1 chop-chop	* *
End of entire message	front front front	2 chop-chops	* * *
Finished calling	front front front	2 chop-chops	* * *

Finished signing	front front front	2 chop-chops	* * *
Finished acknowledging	front front front	2 chop-chops	* * *
Finished what I was just saying	front front front	2 chop-chops	* * *

Attention (wigwag and semaphore)..(a)
Numerals follow (semaphore only)..(n)
Letters follow (semaphore only) signal "attention"..................................(a)
Pause at vertical (wigwag only)..(v)
Remove flags from sight of distant station (wigwag and semaphore).. (r)

Note:—In order to avoid repeating "front," "interval," "numerals follow," "signal attention," etc., all through the text, the SYMBOLS

*

for these have been given above. That is, wherever * is seen, make three fronts (wigwag) or two chop-chops (semaphore). *

THE WIGWAG LETTERS AND NUMBERS

793.

A . —	H	O — — —	V . . . —
B — . . .	I . .	P . — — .	W . — —
C — . — .	J . — — —	Q — — . —	X — . . —
D — . .	K — . —	R . — .	Y — . — —
E .	L . — . .	S . . .	Z — — . .
F . . — .	M — —	T —	
G — — .	N — .	U . . —	
1 . — — — —	4 . . . . —	7 — — . . .	0 — — — — —
2 . . — — —	5	8 — — — . .	
3 . . . — —	6 —	9 — — — — .	

Note:—A Dash is a movement to the sender's LEFT.
A Dot is a movement to the sender's RIGHT.

WIGWAG AND SEMAPHORE PUNCTUATION MARKS

794.

	WIGWAG		SEMAPHORE	
Period (.)	. . (v) . . (v) . .	*	dot	*
Comma (,)	. — . — . —	*	ka	*
Semi-colon (;)	— . — . — .	*	si	*
Colon (:)	— — — . . .	*	kn	*
Question-mark (?)	. . — — . .	*	qs	*
Dash (—)	— . . . . —	*	dx	*
Decimal-point (.)	. . (v) . . (v) . .	*	dot	
Fractional-bar (/)	. — . .		L (without making "letters")	
Dollar-sign ($)	. . . (v) — . . —	*	sx	*
Parenthesis, begin or end	. — — . (v) — .	*	pn	*
Between a whole number and its fraction	— .		N (without making "letters")	

794 (contd.)

Notes on above punctuation marks:

Period:—Indicates "end of sentence, message, etc," begin next word with a capital letter. May be placed at end of message but not essential.

Question-Mark:—May be used to indicate "What did you say?" "I don't understand," etc. in signaling. When it appears in a message begin next word with a capital letter.

Fractional-Bar:—It is checked as "one word."

Wigwag:—do not make a "front" before nor after it.

Semaphore:—Do not make an "interval" before nor after it. Do not make the "letters" sign before it but send it as a numeral.

Use of N:—It is NOT CHECKED.

Wigwag:—Do not make a "front" before nor after it.

Semaphore:—Do not make an "interval" before nor after it. Do not make the "letters" sign before it, but send it as a numeral.

Symbols:—Where a "front" is indicated **make one**, and do not **make** one unless one is so indicated (a period is followed by a "front" **but a** decimal-point is NOT). A period (or decimal-point) is **i i i, but a comma is** NOT **a a a. For meaning of symbols see top of page.**

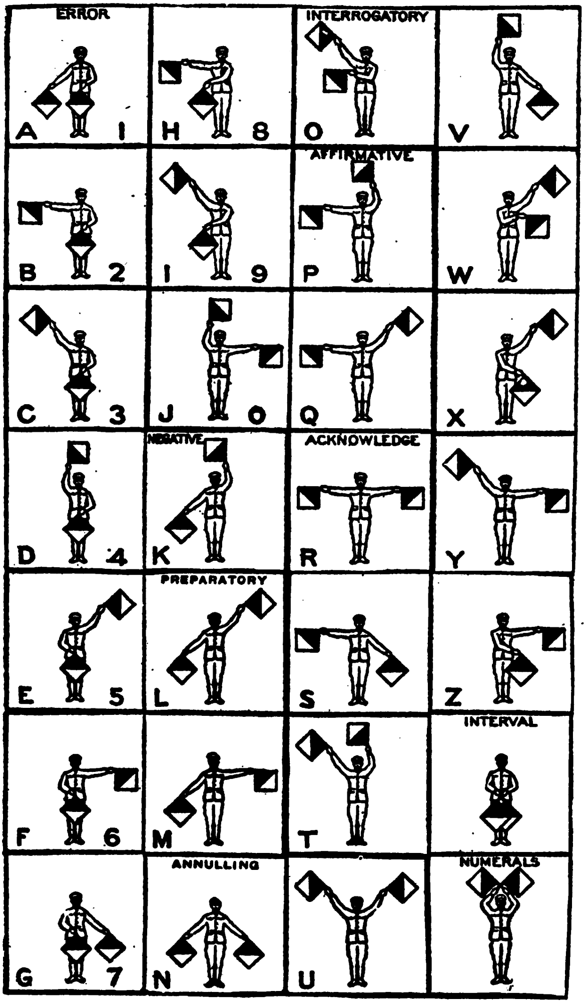

ERROR
A 1
H 8
INTERROGATORY
O
V
B 2
I 9
AFFIRMATIVE
P
W
C 3
J 0
Q
X
D 4
NEGATIVE
K
ACKNOWLEDGE
R
Y
E 5
PREPARATORY
L
S
Z
F 6
M
T
INTERVAL
G 7
ANNULLING
N
U
NUMERALS

PLATE VII

LESSON I

WIGWAG AND SEMAPHORE ABBREVIATIONS

For Wigwag or for Semaphore

795. Signature (to message) follows....sig *

Please acknowledge	ak
I understand you. Or, I acknowledge receipt of what you just sent to me	r
Here is a message for you	hr
Here is another message for you	ahr
Hour	ho
Check	ck
Number (see note, bottom page 61)	nr
No more	nm
Not (intended for) you	nu
Go ahead (with your signaling)	ga
Goodbye	gb
Message	msg
Official message	ofm
Official message requiring an answer	ofmx

795 (contd.)

All right	ok
Wait a moment (or a little while)	min
By whose order?	bho
Pass this on to all troops near you	pson
Use your **White** flag	whit
Use your **Red** flag	red
Use your **Yellow** flag	ylo
Use your Wigwag flag	wig
Use your **Semaphore** flag	sem
Use your **Larger** flag	larg
Use your **Smaller** flag	smal
Move to your **Right**	MR
Move to your **Left**	ML
Move **Up Hill**	MU
Move **Down Hill**	MD

Move to your **Right** and **Up Hill**	MRMU
Move to your **Right** and **Down Hill**	MRMD
Move to your **Left** and **Up Hill**	MLMU
Move to your **Left** and **Down Hill**	MLMD
Your position is **Good**	ok
Your position is **Bad**	bad
Send **Slower**	slo
Send **Faster**	fst
Combat-code letters follow (For Inf. and Cav. only)	U
Message words follow (after combat-code letters have been signaled and are to be discontinued)	X
The following words are not part of this message	XX * (words) * XX
The following words are **Code Words**	XXX * (words) * XXX
Figures follow (when using cipher square)	ZZ * (figures) * ZZ
Beware of gas	gas

Wigwag Only

796. Error in **Sending** (for sender only to use)	* . . * (then begin word over)
Error in **Receiving** (for receiver only to use)	Raise flag to the vertical position and hold it there till sender stops. (See "How to Break")
To break or stop the sender	Raise flag to vertical

To permit sender to go ahead	Lower flag to front and keep it down
To call a **Known** station or organization	Give it call three times, then sign. (See "How to Call and to Sign")
To call an **Unknown** station or organization	Call with 0 (zero) three times, then sign
To call **All troops within sight who are under the command of the person signing***	Call with 4 three times, then sign

Note:—The above is for handy reference only, for details see "How to Break," "How to Acknowledge," and "How to Call and Sign." Before making any call, make the "attention" signal for some time.

Semaphore Only

797. Error in **Sending** (for sender only to use)	Wave flag in position of "d" * (then begin word over)
Error in **Receiving** (for receiver only to use)	Signal "attention" till sender stops (see "How to Break")
To break or stop the sender	Signal "attention" till sender stops
To permit sender to go ahead	Signal "attention ga interval"
To call a **Known** station or organization	Give its call three times, then sign
To call an **Unknown** station or organization	Call it with "numerals 0" (zero), and sign
To call **All troops within sight who are under the command of the person signing**	Call with "numerals 4," and sign

Note:—The above is for handy reference only, for details see "How to Break," "How to Acknowledge," "How to Call and Sign," etc. Before making any call make the "Attention" signal several times.

Note in regard to use of Nr and No.:—The signalist uses "nr" as his abbreviation for the word "number," but when the writer of a message has written "no. 7" the signalist sends it so, and not "nr 7." Hence, the signalist uses "nr 1," etc., in beginning a Standard Field Message, also uses "nr" and not "no" after the word "Hour" in the Standard Field Message blank.

WIGWAG AND SEMAPHORE COMBAT-CODE LETTER

Infantry Only

798. Note:—The first code letter is preceded by "U," and "X" is used only if message words are to follow code letters, otherwise omit.

Am	Ammunition going forward; Ammunition required
C	Charge: Am about to charge if no instructions to contrary
Cf	Cease firing
Dt	Double time; Rush; Hurry
F	Commence firing
Fb	Fix bayonets
Fl	Artillery fire is causing us losses
G	Move forward; Am preparing to move forward
H	Halt
K	Negative (as “U k Cf” . . . . do not cease firing)
Lt	Left
M	Bring up the horses; Horses going forward
O	What is the . . . ? (as “U O Rn” . . . . What is the Range?)
P	Affirmative; “Yes”
R	Received and understood (Not preceded by “U”)
Rn	Range
Rt	Right
S	Support going forward; Support needed
Suf	Suspend firing
T	Target (As “U T X Cav” . . . Target, cavalry)
U	Combat-Code Letters follow
X	Combat-Code Letters end, and message words follow

Cavalry Only

799. **Note:**—The first code letter is preceded by “U,” and “X” is used only if message words are to follow code letters, otherwise omit.

Am	Ammunition going forward; Ammunition required
C	Charge; Am about to charge
Cf	Cease Firing
Dt	Double Time; Rush; Hurry
F	Commence Firing
Fl	Artillery fire is causing us losses
G	Move forward; Preparing to move forward
H	Halt
K	Negative (As “U K F” do not commence firing)
Lt	Left
M	Bring up the horses; Horses going forward
O	What is the . . . ? (As “U O T” what is the target)
P	Affirmative (Means “yes,” usually to a question asked)
R	Received and understood (Not preceded by “U”)
Rn	Range
Rt	Right
S	Support going forward; Support needed
Suf	Suspend firing
T	Target (As “U T X” wagon “tn” . . . target, wagon train)
U	Combat-Code Letters follow
X	Combat-Code Letters end, and message words follow

Field Artillery Only

800. **Note:**—Field Artillery does not use “U” as a Combat-code signal.

A..............................Error
Ad ....Additional

kt	Draw Ammunition from Combat Train
l	Draw Ammunition from Limbers
m	Ammunition going forward
mc	At my command
p	Aiming Point
(numerals)	Battery (so many) rounds
s (numerals)	(Such) Battalion Station
l	Battery from Left
r	Battery from Right
	Charge; Am about to charge
f	Cease firing
s	Close Station
t	Change Target
D	Down
Df	Deflection
Dt	Double Time; Rush; Hurry
F	Commence Firing
Fcl (numerals)	On first piece close by (so much)
Fl	Artillery fire is causing us losses
Fop (numerals)	On first piece open by (so much)
G	Move forward; Preparing to move forward
H	Halt; Action suspended
Ix	Execute; Go Ahead; Transmit
Ji	Report firing data
K	Negative, "No"
Kr	Corrector
L	Preparatory; Attention
Lcl (numerals)	On fourth piece close by (so much)
Lop (numerals)	On fourth piece open by (so much)
Lt	Left
Ll	Left from the left
Lr	Left from the right
Le (numerals)	Less (so much)
Md	Move down
Ml	Move to your left
Mr	Move to your right
Mu	Move up
Mo (numerals)	More (so much)
N	Annul; Cancel
O	What is the . . . ? Interrogatory
P	Affirmative; "Yes"
Ps	Percussion; Shrapnel
Qrq	Send faster
Qrs	Send slower
Qrt	Cease sending
R	Received and understood
Rs	Regimental Station
Rl	Right from the left
Rr	Right from the right
Rn	Range
Rt	Right
S	Subtract

Scl (numerals)	On second piece close by (so much)
Sop (numerals)	On second piece open by (so much)
Sh	Shell
Si	Site
Sss	Support needed
T	Target
Tcl (numerals)	On third piece close by (so much)
Top (numerals)	On third piece open by (so much)
U	Up
Y (letter)	Such battery station

COAST ARTILLERY ONLY

801. **Note:**—Coast Artillery does not use "U."

Coast Artillery, when serving as Infantry, uses the abbreviations as given for Infantry, otherwise the following:

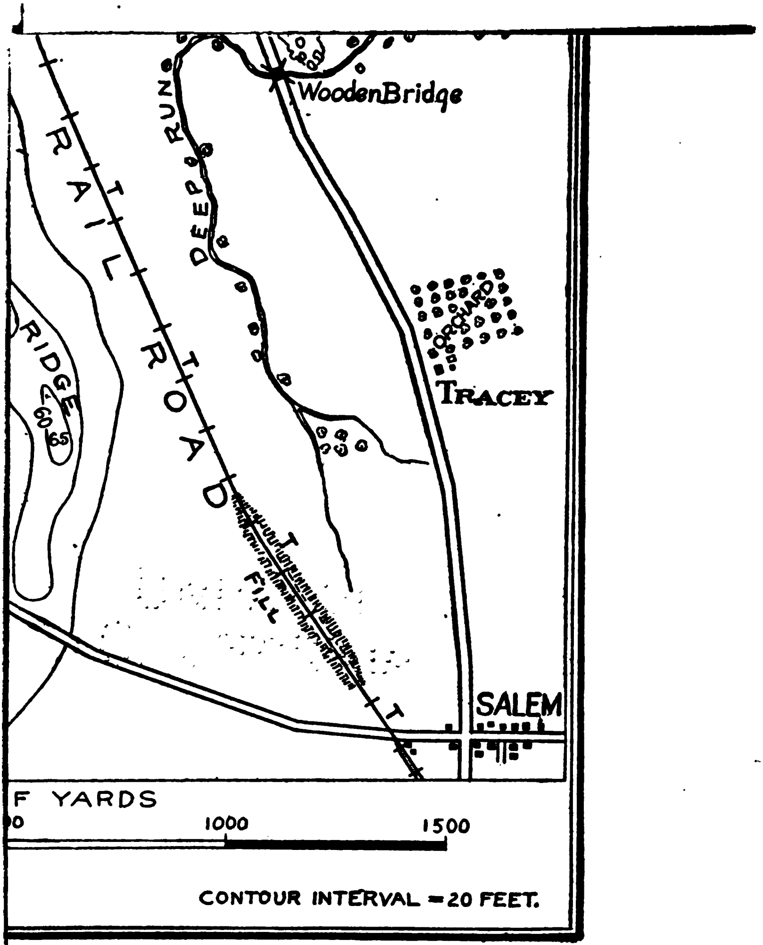
C	*	Commence towing
D	*	Distress
I	*	Come in
K	*	Range correct, ready to fire
L	*	Incline to port
O	*	Go out
R	*	Incline to starboard
S	*	Hold stationary
T	*	Turn
Z	*	Close practice

Numeral Abbreviations—Calls

802.

0	Unknown body of troops
1	1st Battalion or Squadron
2	2nd Battalion or Squadron
3	3rd Battalion or Squadron
4	All troops within sight under command of person signing
5	Machine guns; or Machine Gun Company
6	Field Train
7	Regiment
8	Brigade
9	Division

11	A	Companies, Troops or Batteries
12	B	
13	C	
14	D	
21	E	
22	F	
23	G	Companies or Troops
24	H	
31	I	
32	K	
33	L	
34	M	
35	Headquarters Company	
36	Supply Company	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RAILROAD
RIDGE
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